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Vol. XX MARCH, 1909 No. 3

AFRICAN NUMBER

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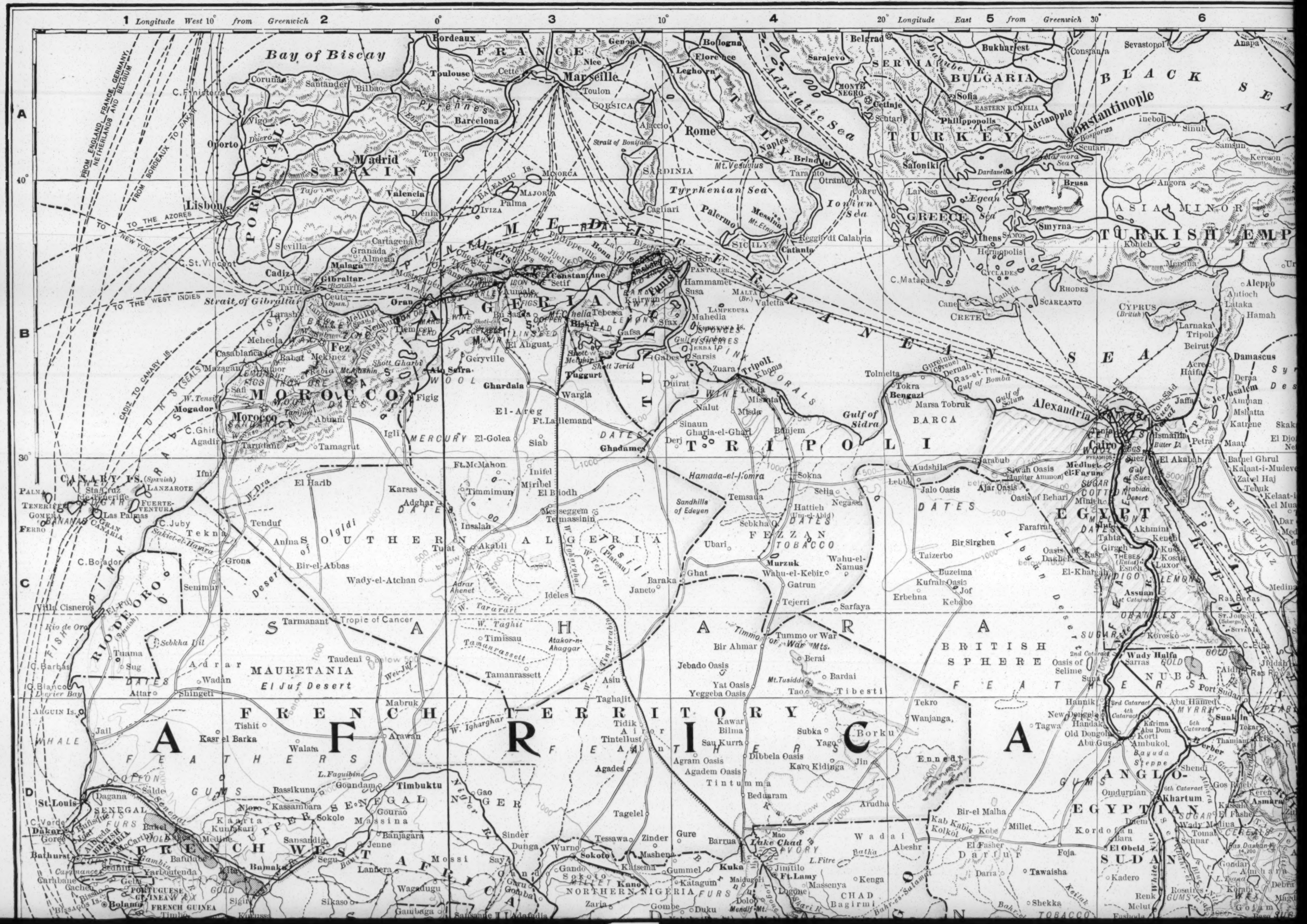
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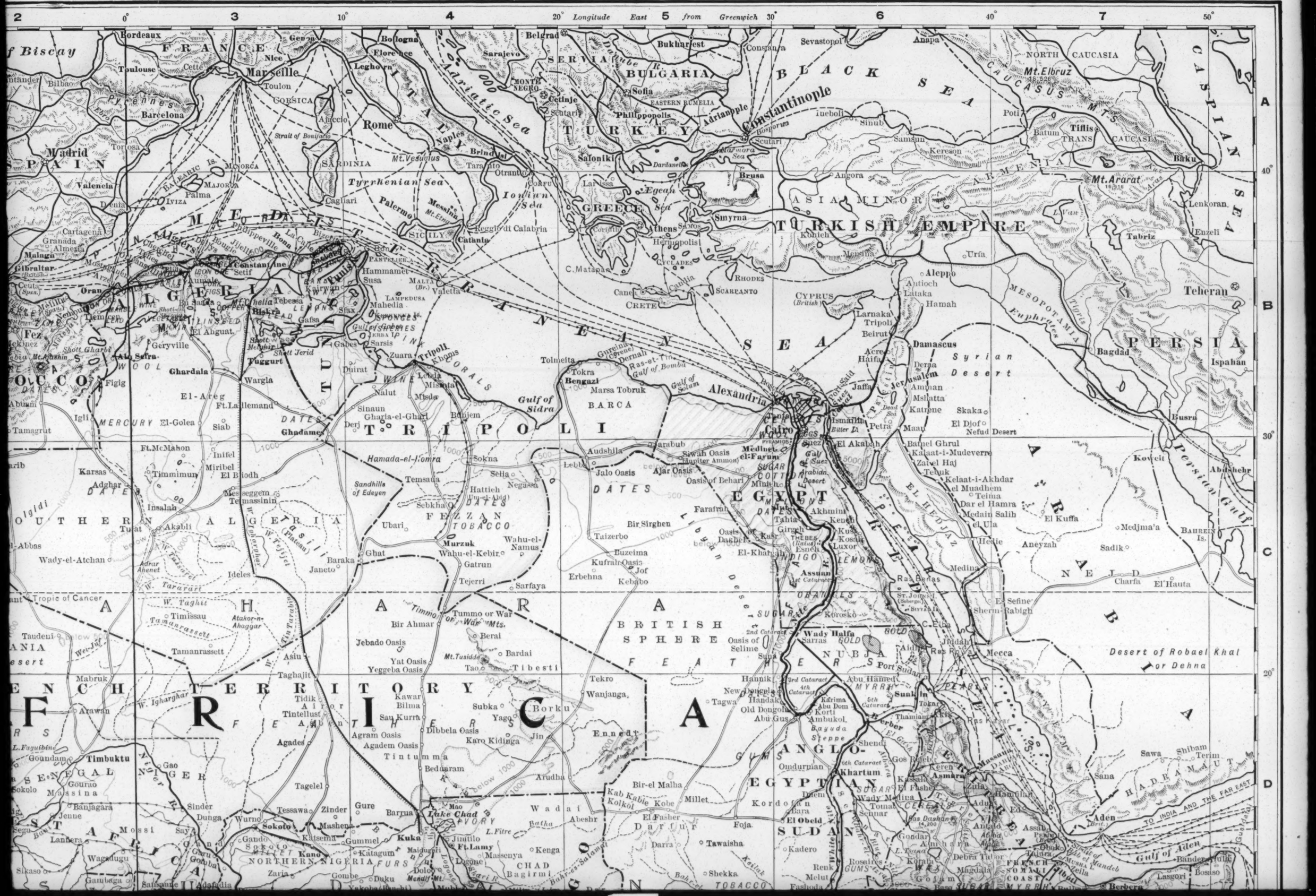
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el Ula
Kelaat-i-Akhdar
el Muadhem
Teima
Zatvel Haj
Tebuk
Kelaat-i-Mudeverre
Batuel Ghrul
Maan
El Djof
Nefud Desert
Desert of Robael Khal
Dehna
Euphrates R.
Tigris R.
MESOPOTAMIA
Lake Van
Lake Urmia
Araxes R.
Kur R.
Caucasus Mts.
Elburz Mts.
Kopet Dagh
Caspian Sea
Red Sea
Gulf of Sidra
Gulf of Sirte
Gulf of Bomba
Gulf of Gabes
Gulf of Hammamet
Tolmeita
Tokra
Bengazi
Marsa Tobruk
BARCA
Audshila
Lebba
Jalo Oasis
Ajar Oasis
Siwah Oasis
Oasis of Behari
Farafrah
Bir Sirghen
Taizerbo
Buzeima
Kufrah Oasis
Erbehna
Jof
Kebabo
Oasis of Kasr

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EGYPT

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ABYSSINIA

ANGOLA

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CANARY IS. (Spanish)

Rio de Oro

MAURETANIA

SOUTHERN ALGERIA

FEZZAN

Gulf of Guinea

Bight of Benin

Bight of Biafra

Cape Coast Castle

Equator

Tropic of Cancer

Mercury

Ghadames

Hamada-el-Homra

Sandhills of Edeyen

Tummo or War Mts.

Mt. Tusidda

Lake Chad

Tibesti

Darfur

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Nile

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Pretoria

Salisbury

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Congo R.

Niger R.

Senegal R.

Gambia R.

Volta R.

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Lake Tanganyika

Lake Nyasa

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Mt. Kenya

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Southampton to Cape Town

Hamburg to Swakopmund

Cable to Cape Verde Is. & Europe

Sperm Whale

Humpback Whale

Whale Fisheries

Fish

Ivory

Ebony

Gold

Wax

Wine

Furs

Rubber

Ostrich Feathers

Coffee

Cocoa

Bananas

Palm Oil

Gum

Dates

Millet

Tobacco

Sugar

Cotton

Myrrh

Indigo

Lemons

Oranges

Nuts

Copper

Iron Ore

Mahogany

Ebony

Gold Coast

Ivory Coast

Upper Senegal

French Guinea

Portuguese Guinea

Sierra Leone

Liberia

Togo

Dahomey

Lagos

Southern Nigeria

Northern Nigeria

Kamerun

Gabun

Spanish Guinea

Congo State

Uganda

British East Africa

German East Africa

Portuguese West Africa

Angola

Rhodesia

Bechuanaland

Basutoland

Swaziland

Transvaal

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Iron Ore

Mahogany

Ebony

Gold Coast

Ivory Coast

Upper Senegal

French Guinea

Portuguese Guinea

Sierra Leone

Liberia

Togo

Dahomey

Lagos

Southern Nigeria

Northern Nigeria

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Libyan Desert

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Sahara

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Drakensberg

Table Mountain

XUM

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Cable Lines: ..... Overland Telegraph Lines: ——

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Monrovia

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GOLD COAST

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LAGOS

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KAMERUN

Kamerun Mt.

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CONGO STATE

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GERMAN PROTECTORATE

BECHUANALAND

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CAPE COLONY

NATAL

ORANGE RIVER COLONY

TRANSVAAL COLONY

BASUTOLAND

RHODESIA

NORTH-WEST RHODESIA

SOUTH-EAST RHODESIA

NORTH-EAST RHODESIA

PORTUGUESE EAST AFRICA

UGANDA

BRITISH EAST AFRICA

GERMAN EAST AFRICA

Kalahari Desert

Lake Tanganyika

Lake Nyassa

Lake Bangweolo

Victoria Falls

Mt. Kilimanjaro

Mt. Kenia

Mt. Elgon

Mt. Ruwenzori

Mt. Sinda

Mt. Afur

Mt. Sinoia

Mt. Chiradzulu

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French

SCALE OF STATUTE MILES ALONG THE EQUATOR.

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German | Italian | Portuguese

Spanish | Turkish | Independent Territories and Congo State

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CONGO STATE

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LOANGO

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Mombasa

Victoria Nyanza

Tanganyika

Nyasa

Lake Bangweolo

Victoria Falls

Zambezi R.

Kilimanjaro

Mt. Silinda

Omatako Mt.

Tananarivo

Majunga

Tamatave

Diego Suarez

Comoro Islands

Mohilla

Mayotta

Johanna

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Europe I.

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Juan de Nova I.

Glorioso Is.

Nos Be

Nosy Ovy

Murondava

Masikora Bay

Ft. Dauphin

Andovoranto

Marosika

Masindrano

Foulpointe

Feberive

Ste. Marie

Antongil Bay

Vohemar

C. Amber

C. Delgado

Mozambique Channel

Cape of Good Hope

C. Agulhas

C. Negro

C. Frio

C. Cross

C. St. Andrew

C. St. Vincent

C. Ste. Marie

C. Corrientes

Inhambane

Delagoa Bay

Sofala

Chiloane I.

Bazaruto I.

Quilimane

Tete

Zumbo

Chirowe

Mazaruma

Sitanda

Molilo

Kazembe

Mpweto

Kawende

Kabompo

Kwakalonga

Kansanshi

Katanga

Kinyama

Kisenga

Kambove

Ruwe

Guba

Busanga

Kimbundu

Kabango

Kadinga

Mussumba

Duque de Braganca

Malanji

Kassanshe

Kilemba

Kaumba

Kilata

Encoche

Mukula

Ambriz

Ambrizette

Muserra

Kinguchi

Kimpesse

Muata Kumbana

San Salvador

Mpene

Puto Kassongo

Kikassa

Lupungu

Luluaburg

Luebo

Lusambo

Kongola

Kindu

Gandu

Nyangwe

Kibanga

Riba-Riba

Ponthierville

Stanley Falls

Kirundu

Ikoku

Borombe

Inongo

Lukolela

Franceville

Lastourville

Lambarene

Bowe

Ilocu

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Ngombe

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Ft. Princeza Amella

Huilla

Humbe

Moi Molomo

Kiteve

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Chisamba

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Lobito Bay

Katumela

Belmonte

Kunda

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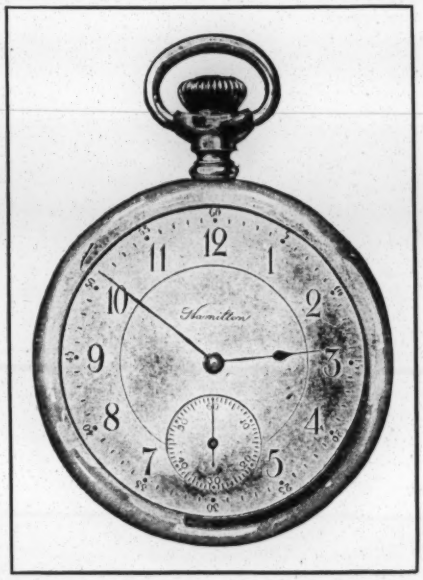

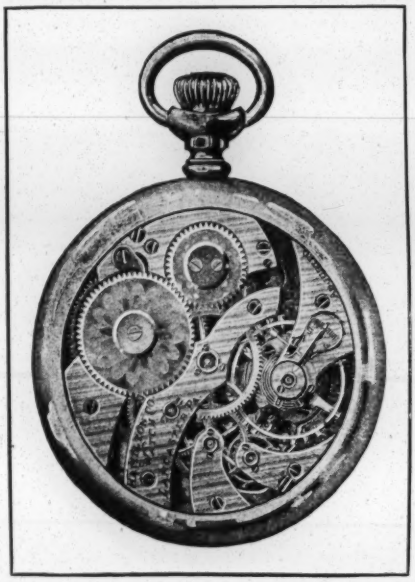

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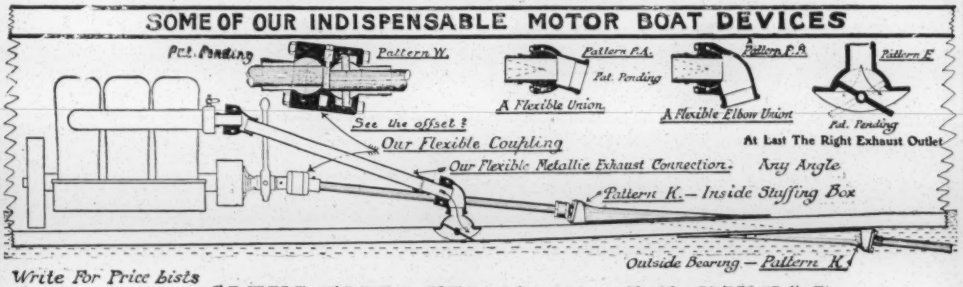

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VOL. XX, NO. 3 WASHINGTON MARCH, 1909

THE NATIONAL GEOGRAPHIC MAGAZINE

WHERE ROOSEVELT WILL HUNT*

BY SIR HARRY JOHNSTON, G.C.M.G., K.C.B., D.SC. COMBS

LATE SPECIAL COMMISSIONER IN UGANDA, ETC., ETC.

THE history of the exploration of East Central Africa is, of course, of great interest not only to Great Britain, but to the United States, because it was not only Britishers who revealed the features of the geography of this region, but Americans also have left their names among these records of exploration. Among such have been Col. Chaillé Long, Mr Chanler, and Dr Donaldson Smith. Col. Chaillé Long was the first resident in the kingdom of Uganda, and was sent there by General Gordon. He was chief of General Gordon's staff, and is living in Washington at the present time. The great Sir Henry Stanley might perhaps be equally claimed by Great Britain and America.

Joseph Thomson was the first to reach the Victoria Nyanza, coming direct from the east coast of Africa. Previously explorers had approached the Victoria Nyanza by a circuitous route from the south and west in order to avoid the Masai tribes. But Joseph Thomson, who was a man with a wonderful gift for getting on with the natives and winning their liking, managed to be the first of all white men to go right through the Masai belt and reach the Victoria Nyanza from the east. And when he finished his wonderful journey he became the real founder of British East Africa. He died at the age of only thirty-seven, after carrying out some of the most remarkable journeys ever made in Africa—remarkable because he never fired a rifle at a native. I traveled immediately afterwards in some of Thomson's tracks and got on splendidly, because my name was so like his that I was taken for his brother, and I was careful not to undeceive the people.

I imagine that President Roosevelt will make his starting point Mombasa, and that from Mombasa he will probably travel a certain distance on the Uganda Railroad, and then strike off toward the north and see what he can find there in the way of interesting big game.

Before we go up in imagination with him along the routes he may follow, it might be well to realize how this country came to be known by Europeans, and what vestiges remain there of the original pioneers.

ARABS AND PERSIANS CAME THREE THOUSAND YEARS AGO

Lamu is an important place some distance to the north of Mombasa. To

*An address to the National Geographic Society, supplemented by extracts from "The Uganda Protectorate," by Sir Harry Johnston.

Photo from David Fairchild

A GIRL OF MOMBASA

Lamu there came undoubtedly natives from Arabia long before the days of Islam—perhaps three thousand years ago—and in time there followed a large immigration from Persia. A number of Persians left Shiras and Bashis, and found their way to East Africa, in consequence of some internal troubles in Persia at a period in history difficult to fix at this time. Men and women of Lamu show signs in their physiognomy of an intermixture between Persian and negro. When I first visited Lamu in 1884 there were beautiful specimens of ancient pottery to be obtained there, either from the houses of the natives or from old tombs. There were old tombs all around the city, in the masonry or cement of which exquisite Persian plates were fixed. I did not avail myself of the opportunity to get any of these specimens, but people came later who were less scrupulous, and the tombs of Lamu have since been rifled of their pottery and other beautiful examples of ancient art. An examination of the tombs threw very interesting light on the history of East Africa, because they contained a good many examples of Chinese pottery, and even Chinese coins.

Following the Arabs and Persians came the Portuguese. When Vasco da Gama rounded the Cape of Good Hope he traveled rapidly with the aid of the north monsoon, reached the Swahihi coast, and built the commemorative column of Malindi, which exists to this day some distance to the north of Mombasa. The Portuguese held for a time Lamu, and for something like two centuries the port of Mombasa, the fortifications of which remain to this day as a signal example of the wonderful energy of the Portuguese at that period.

The Portuguese were expelled from this country by an Arab uprising in the middle of the eighteenth century. Some of the women whom President Roosevelt will see at Mombasa are rather extensively clothed, compared to the people of the far interior. They also wear nose [illegible] and other ornaments probably borrowed from the Hindus, for there are a great many East Indian settlers at Mombasa and the other Swahihi ports.

The people who inhabit the country in the vicinity of Tana River, north of Mombasa, and thence north through the lands of the Boran Gala, are a very interesting type, obviously not negro, but perhaps more Caucasian; only darkened by some old intermixture with the negro races. They often have European features. Their language is very interesting, because it, together with Lamato and other Hamitic tongues, is related to the language of the ancient Egyptians.

Now we will imagine we have landed at Mombasa and have taken the railroad. The President will have noticed that the coast belt has a very dense vege-

tation, owing to the heavy rainfall. Then he will travel through a more arid country of thorn bushes and Euphorbias, until he reaches a plateau region of plains, mountain ridges, and stream valleys with fine forests.

Then the railway descends into the Great Rift Valley, which is a depression twenty to forty miles broad, extending from the southern part of German East Africa to the Red Sea. It is as though some convulsion of the earth had caused a section of the plateau to slip down about 3,000 feet below the general level.

STREET SCENE IN MOMBASA

There is a system of narrow-gauge tram-lines running along the main roads, with branches running off to every house. Each official keeps his private trolley, in which he is pushed by coolies to and from his daily work. No white man in Mombasa walks if he can possibly avoid doing so. Photo from David Fairchild.

On looking at a relief map of northeast Africa it almost suggests the idea that nature had been considering whether she would not cut off another slice of Africa in addition to Madagascar. Madagascar may have been originally separated from Africa in that way. In this curious depression of the "Rift Valley" is a series of lakes, salt in some instances and fresh in others. Particularly noteworthy is a salt lake named Lake Hannington, after a missionary bishop murdered by the natives. (This commemoration was rather inappropriate because he was killed at a distance of nearly four hundred miles from this place.) Lake Hannington is visited at the present day by tourists who come to see the great number of flamingoes which make their home here.

A WONDERFUL COLONY OF FLAMINGOES

On Lake Hannington it is no exaggeration to say that there must be close upon a million flamingoes. These birds are mainly collected around the northern end of the lake and on the submerged banks which break up the deep blue-green of its still surface. The shores where they cluster, and these banks in the middle of the lake where they are above the water's edge, are dazzling white with the birds' guano. These flamingoes breed on a flat plain of mud about a mile broad at the north end of Lake Hannington, where their nests, in the form of little mounds of mud with feathers plastered on the hollowed top, appear like innumerable mole-hills.

The birds, having hitherto been absolutely unmolested by man, are quite tame. They belong to a rosy species (*Phœniconais minor*) which is slightly smaller than the Mediterranean flamingo, but exquisitely beautiful in plumage. The adult bird has a body and neck of rosy pink, the color of sunset clouds. The beak is scarlet and purple; the legs are deep rose-pink inclining to scarlet. Underneath the black-pinioned wings the larger feathers are scarlet-crimson, while beautiful crimson crescents tip the tertiaries and wing-coverts on the upper surface of the wings. Apparently the mature plumage is not reached until the birds are about three years old. The younger flamingoes very soon attain the

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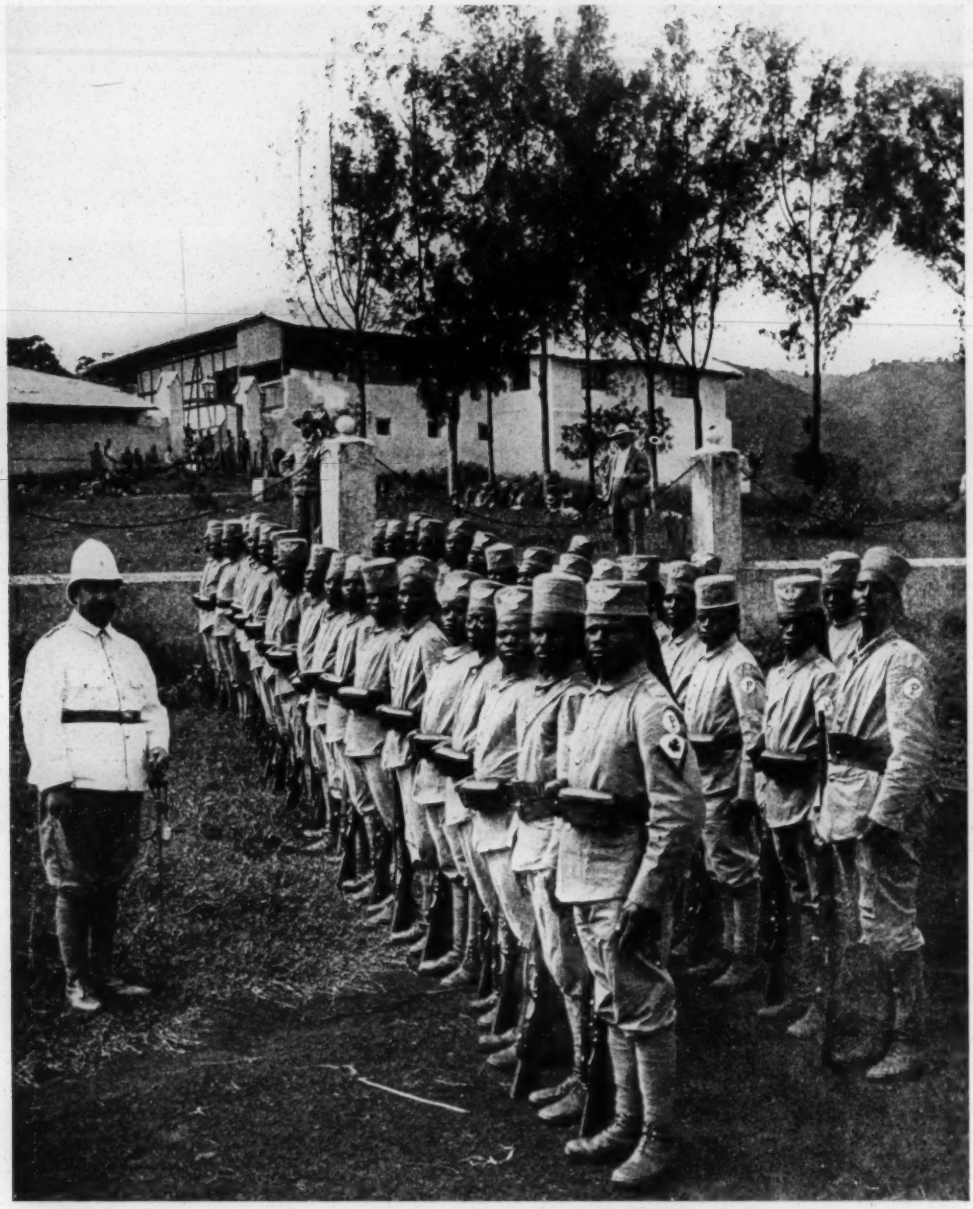
A BELLE OF MOMBASA WITH HER PET DEER

She paints circles on her cheeks and dyes her hands purple, and is a recognized model of feminine stylishness. Antelope steak is a favorite dish in this region, but this particular animal is a treasured favorite, safe from the hunter's rifle.



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COLONEL BAST AND HIS MIXED SUDANESE AND MASAI TROOPS IN FRONT OF THE GERMAN FORT AT MOSHI, KILIMANJARO

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MASAI MEN RESTING WHILE THEIR WIVES BUILD A NEW VILLAGE

Note the quantities of metal bracelets and necklaces worn by the women. The women generally die of over-work and old age before they are forty

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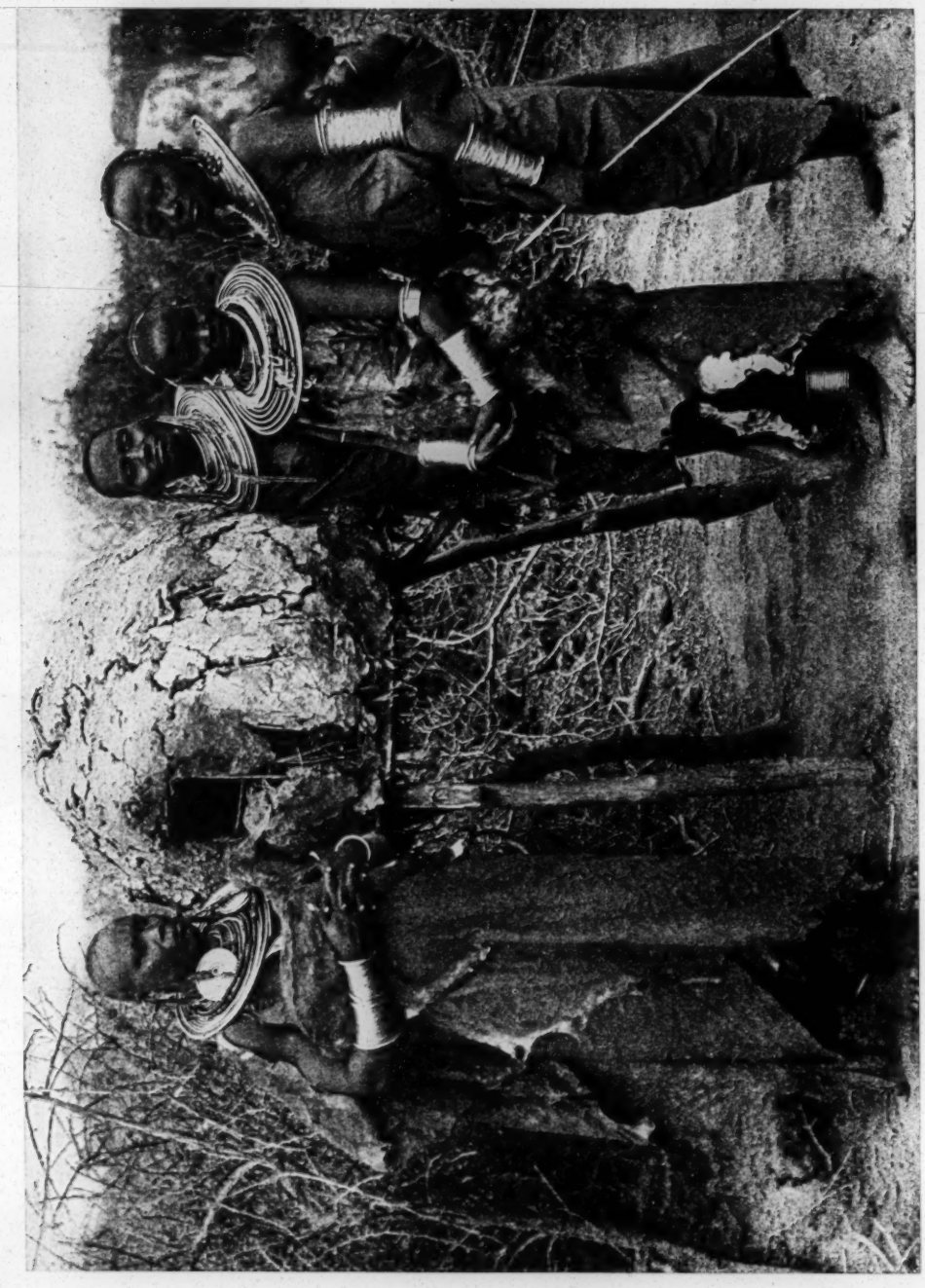
A MASAI SETTLEMENT (SEE PAGE 218)



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A MASAI AND HIS WIVES

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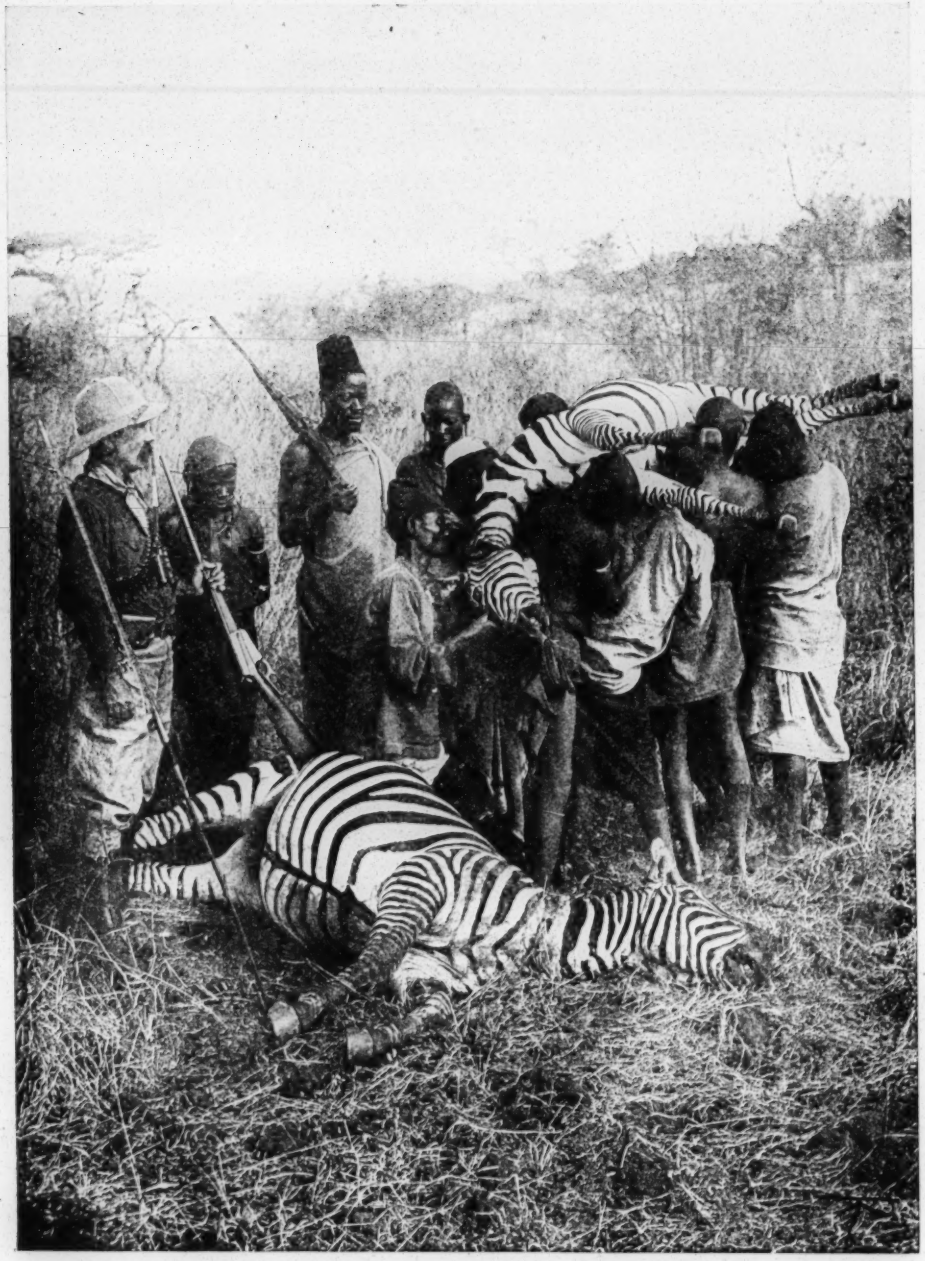
A HUNTING SCENE IN EAST AFRICA



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IN THE GREAT RIFT VALLEY OF EAST AFRICA (SEE PAGE 209)

same size as the rosy adults, but their plumage when they are full grown is first gray-white and then the color of a pale tea-rose before it attains its full sunset glory.

On the north coast of the lake the belt of flamingoes must be nearly a mile broad from the edge of the lake outwards. Seen from above, this mass of birds on its shoreward side is gray-white, then becomes white in the middle, and has a lakeward ring of the most exquisite rose-pink, the reason being that the birds on the outer edge of the semicircle are the young ones, while those farthest out into the lake are the oldest. It is not easy to make the birds take to flight. When they do so suddenly and the shallow water is stirred, the stench which arises is sickening.

The noise of these birds can be heard from nearly a mile distant. The kronk-kronk-kronk of the million, mingled with hissings and squitterings and splashings and the swish-swish-swish of those who are starting on flight, combine to make a tumult of sound in the presence of which one has to shout to one's companions in order to be heard. It is curious to watch the ungainly motions of these birds when they wish to rise in the air. Their flight has to be preceded by an absurd gallop through the mud before they can lift themselves on their wings. When I arrived at Lake Hannington they were so tame that I was able to go as far as I could wade in the water with my camera and photograph them at quite a short distance.

QUEER HABITS OF THE NATIVES

The human inhabitants of this part of East Africa mainly belong to the fine, handsome Masai race and the peoples of Nandi and Suk stock (closely allied in racial origin to the Masai), while in the coast regions bordering the Victoria Nyanza there are a few Nilotic and Bantu negroes.

The Suk natives of the northern part of the Rift Valley, southwest of Lake Rudolf, wear no clothes, but devote considerable attention to their hair. It is thought an unwomanly thing for the Suk women to have hair on the head. The men, however, encourage the hair to grow. When the father of a family dies his head-hair is divided among his sons, and each one weaves his portion into a *chignon*. In this *chignon* is a hollow bag in which is put all a man's portable possessions that he prizes most—his snuff box, ornaments, etc.

The Karamojo people who dwell to the west of Lake Rudolf do not go in so much for *chignons*, but their favorite ornament is to make a hole through the lower lip and to wear in it the cone of some crystal.

Among the dense forests, the game-haunted wildernesses, and unfrequented plateaux, wanders a mongrel nomad race, the Andorobo, who represent a mixture of Nandi, Masai, and some antecedent negro race of dwarfish, Bushman stock. These Andorobo reproduce in a most striking manner the life which we may suppose to have been led by our far-away ancestors or predecessors in the earliest Stone Ages. They lead, in fact, very much the life that the most primitive types of man led in Great Britain and France in the farback days of big animals, possibly before the coming of the glacial periods. They live entirely by the chase, often consuming the flesh of birds and beasts uncooked. Though they commit considerable devastations among the game of the province, they are a picturesque feature when encountered, and a striking illustration, handed down through the ages, of the life of primitive man not long after he had attained the status of humanity and had acquired a knowledge of the simplest weapons.

THE MASAI PEOPLE

Lake Naivasha, one of the lakes of the Rift Valley, is probably the center of a district where President Roosevelt will spend some time, because there are some very interesting things to be seen and possibly some remarkable animals to be obtained there. The western side of Lake Naivasha has picturesque moun-

tains, which have to be ascended by the Uganda Railway, further north than Lake Naivasha, at considerable difficulty and expense. Here the railroad is carried to an altitude of 8,300 feet before it begins to descend the western slope of the plateau.

Lake Naivasha is almost in the middle of the western Masai country. The dwellings of the cattle-keeping Masai are small flat-roofed structures. The Masai women are scrupulously clothed, originally in dressed skin, but today often in cloth. They are sharply distinguished from their husbands and brothers, who very ostentatiously wear no clothing for purposes of decency. The Masai have attracted a great deal of attention ever since Joseph Thomson, the explorer, together with Dr Fischer (an equally distinguished explorer of German nationality), laid bare to us Masailand. The Masai have been the occasion of terrible havoc throughout East Africa by the attacks they made on all settled peoples. At some unknown period in their racial career a very great part of the Masai decided they would not till the fields any longer, but that they would take away the cattle of other tribes not strong enough to resist them. This is one of the reasons why so many of these beautiful plateaus of the present day are absolutely devoid of human inhabitants except a few European settlers who have come there. It was not that the negroes objected to the climate; they simply wiped one another out. This process has occurred over and over again in many parts of Africa. No one has ever been so cruel to the negro as the negro himself. The Masai are now great cultivators.

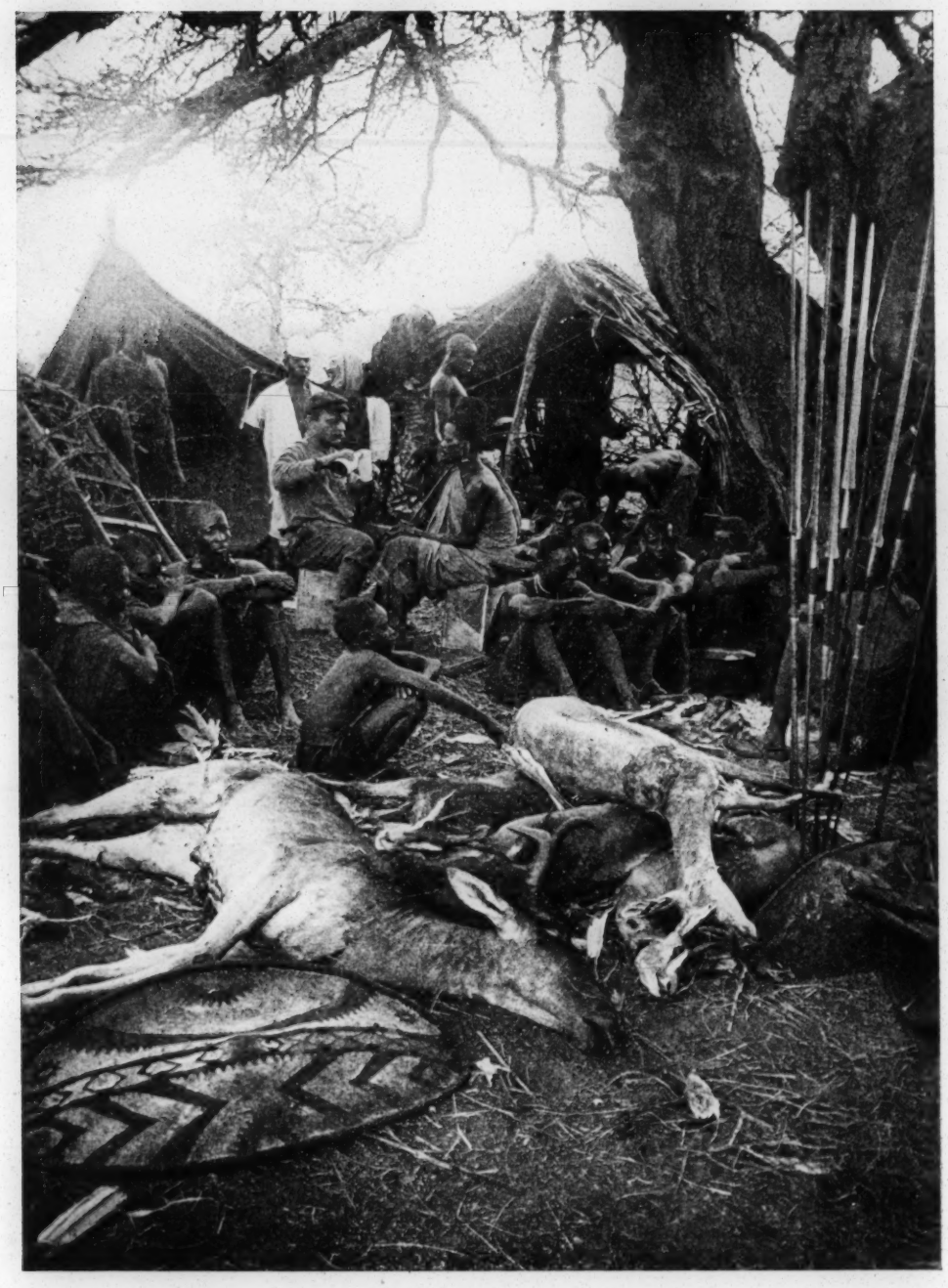
Their towns are surrounded by belts of tall trees, mainly acacias, some of which must be considerably over a hundred feet in height, with green boughs and trunks and ever-present flaky films of pinnated foliage. In the rainy time of the year these trees are loaded with tiny golden balls of flowers, like tassels of floss silk, which exhale a most delicious perfume of honey. In the plains between the villages Grevy's zebra and a few oryx antelopes scamper about, while golden and black jackals hunt for small prey in broad daylight, with a constant whimpering.

Enormous baboons sit in the branches of the huge trees ready to rifle the native crops at the least lack of vigilance on the part of the boy guardians. Large herds of cattle and troops of isabella-colored donkeys, with broad black shoulder-stripes, go out in the morning to graze, and return through a faint cloud of dust, which is turned golden by the setting sun in the mellow evening, the cattle lowing and occasionally fighting, the asses kicking, plunging, and biting one another.

THEIR DEAD ARE DEVOURED BY HYENAS

After sunset, as the dusk rapidly thickens into night, forms like misshapen, ghostly wolves will come from no one knows where, and trot about the waste outside the village trees. They are the spotted hyenas, tolerated by the Masai because they are the living sepulchres of their dead relations. When man, woman, or child dies among the Masai, agricultural or pastoral, the corpse is placed on the outskirts of the settlement for the hyenas to devour at nights. The cry of the hyena is not a laugh, as people make out, but a long-drawn falsetto wail ending in a whoop. It sounds exactly like what one might imagine to be the mocking cry of a ghoul; and but for the fact that we now find that the ghoul myth has a very solid human origin (since there are depraved people all over Africa at the present day who have a mania for eating corpse-flesh, and this trait may also have cropped out in pre-Mohammedan days in Arabia and Persia), one might very well imagine that the idea of the ghoul arose from the hyena, as that of the harpy probably did from the vulture.

All these people are alike in their love of blood as an article of food. They periodically bleed their cattle and drink the blood hot, or else mix it with porridge. The women of these tribes do not eat fowls, and neither men nor women eat eggs. As among most negro races, the men feed alone, and the women eat after the men have done.



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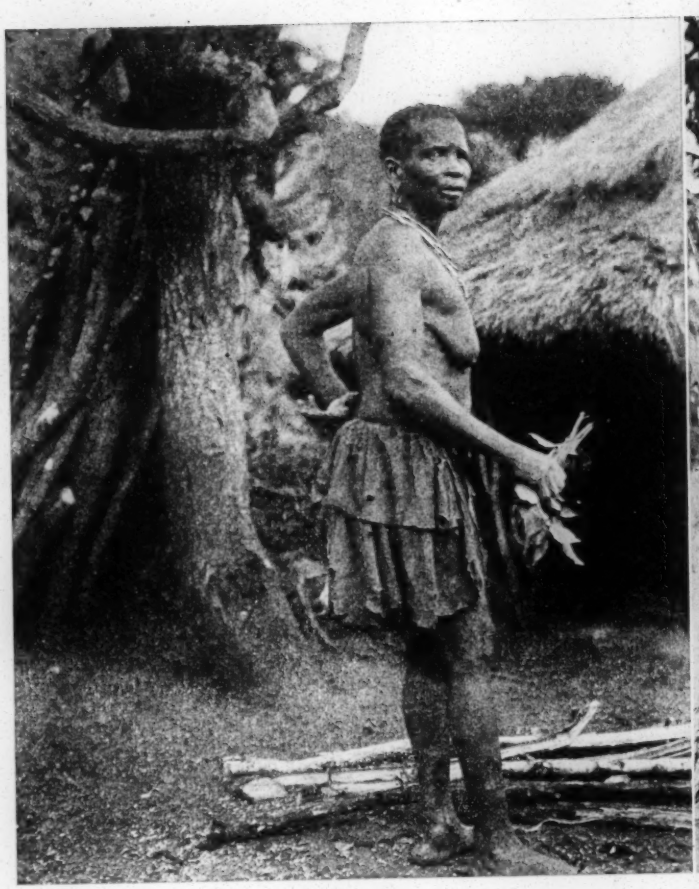
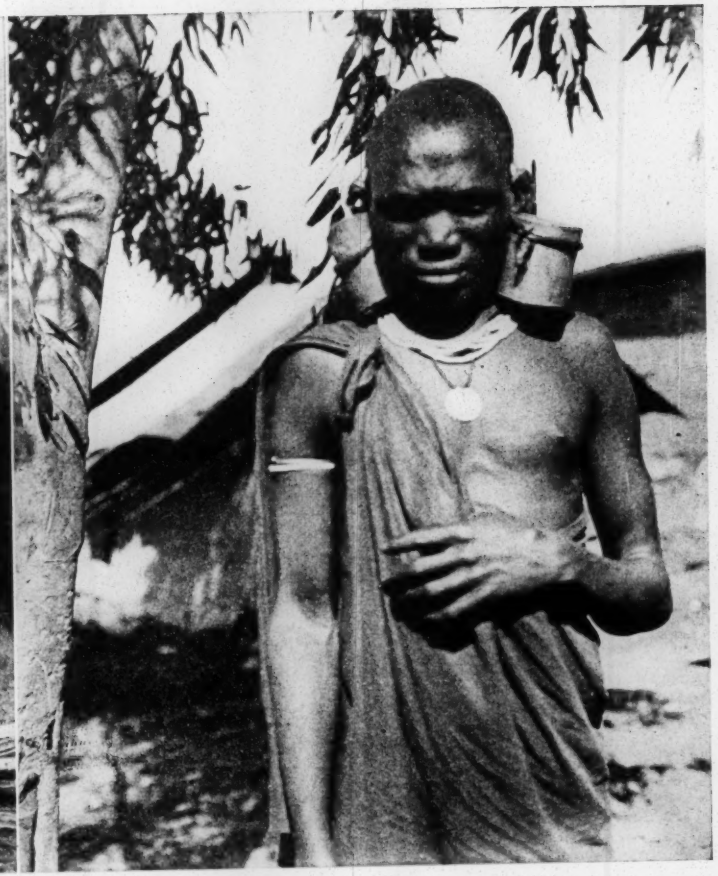
RESTING AND FEASTING AFTER A MORNING'S HUNT IN THE JUNGLE

An American sportsman with native guests and servants near the British frontier of German East Africa



AN ANDOROBO



AN ANDOROBO BEAU Photos from C. E. Akeley

Note that the wooden cylinders in the boy's ears have been inserted in the lobes of the ear and are entirely supported by this means (see page 221)

Honey is a most important article of diet of all the natives in this region. In some districts they semi-domesticate the wild bees by placing bark cylinders on trees for them to build in. From honey is made an intoxicating mead. They also make a wine from the sap of the wild date palm. Beer is made from the grain of eleusine and sorghum. As a general rule fermented liquors are never drunk by the young unmarried women or the young men. Both sexes and people of all ages use tobacco in one form or another. The fighting men take snuff, the old married men chew tobacco, and the old women smoke it. The Lumbwa people make tobacco juice by keeping macerated tobacco leaves soaked in water in a goat horn slung round the neck. Closing one nostril with a finger, they tilt the head on one side, and then pour the liquid tobacco juice out of the horn into the other nostril. Both nostrils are then pinched for a few minutes, after which the liquid is allowed to trickle out.

POISONED ARROWS

The nomad Andorobo people, besides killing innumerable colobus monkeys in the dense woods of the Mau and Nandi plateaux (with poisoned arrows), sally out into the plains of the Rift Valley or range over the opposite heights following up the elephant, and attacking and slaying most of the big antelope. They kill the elephant very often by shooting into its leg at close quarters a harpoon with a detachable and strongly poisoned head. The powerful arrow poison used by the Andorobo and Masai is made from the leaves and branches of *Acocanthera schimperi*. The leaves and branches of this small tree are broken up and boiled for about six hours. The liquid is then strained and cleared of the fragments of leaves and bark. They continue to boil the poisoned water until it is thick and viscid, by which time it has a pitch-like appearance. The poison is kept until it is wanted on sheets of bark. After they have finished preparing the poison they carefully rub their hands and bodies free from any trace of it with the fleshy, juicy leaves of a kind of sage.

The poison is always kept high up on the forks of trees out of the reach of children, and the poisoned arrows are never kept in the people's huts, but are stowed away in branches. When a beast has been shot with these arrows, it dies very quickly. The flesh just around the arrowhead is then cut out and thrown away, but all the rest of the beast is eaten and its blood is drunk.

All these peoples use dogs in hunting, and before starting for the chase they are said to give their dogs a drug which makes them fierce. They also catch birds with bird-lime. The Nandi go out in large numbers to hunt, surround a herd of game in a circle, and then approach the animals near enough to kill them with arrows and spears.

The people who inhabit the eastern fringe of the plateau develop the fashion of the earring to a considerable extent. They begin when children to pierce a hole in the lobe of the ear through which they first pass a stick of wood the size of a match. This is increased in thickness until they succeed in stretching the lobe in the course of years into a huge loop. It is interesting to know that in some of the old Egyptian accounts of the Land of Punt (which we take to be somewhere near Somaliland, in northeast Africa), they mentioned people with ears that hung down to their shoulders. Obviously they are describing the people of Somaliland as they existed 3,000 or 4,000 years ago. Some of them have a physiognomy rather similar to the Hamitic people of the north, not altogether negroes.

GRAND SCENERY OF THE RIFT VALLEY

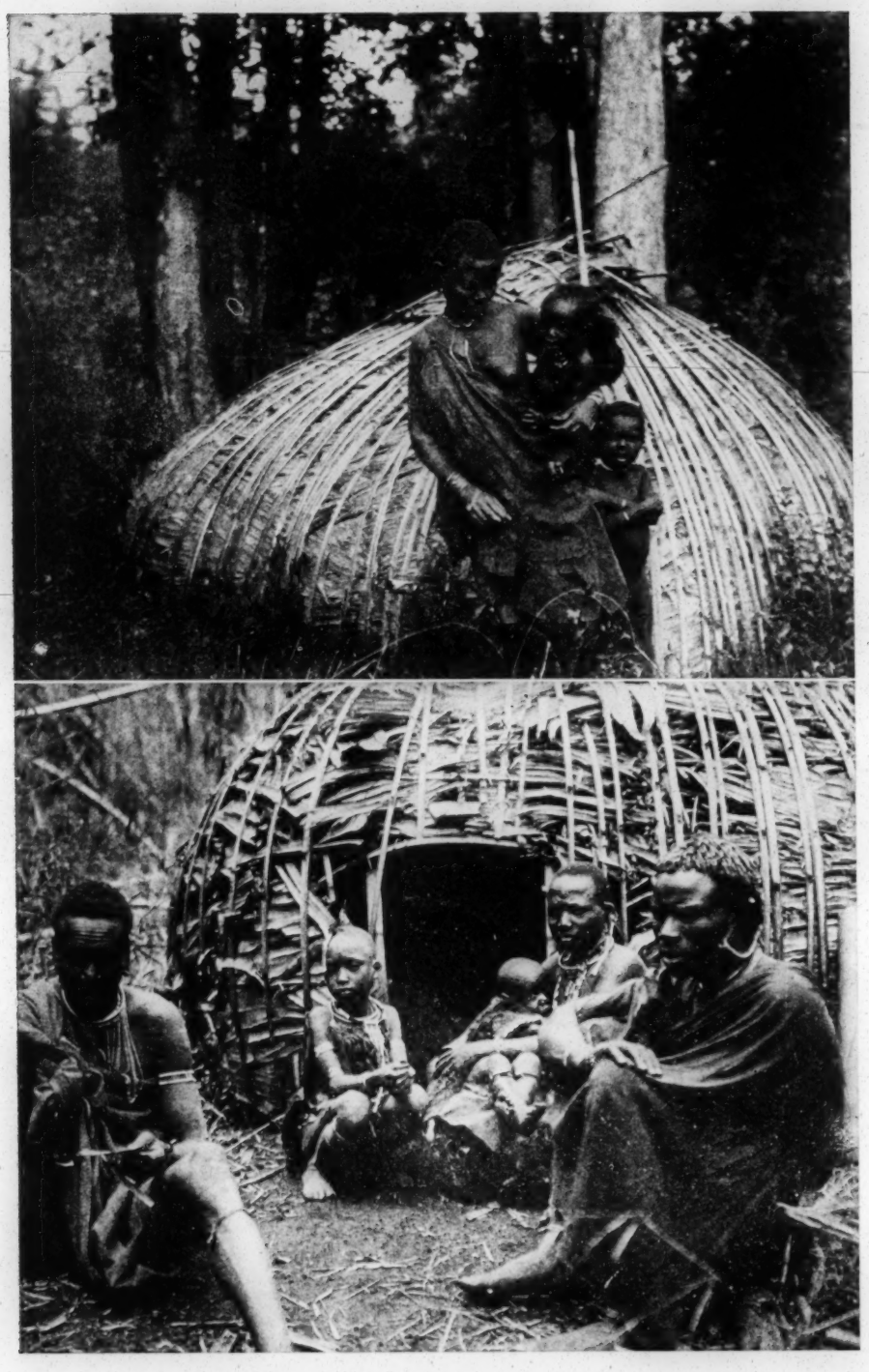
The hills of the termites, or "white ants," are not only familiar in their general outline to all who have visited tropical Africa, but even to the untraveled reader of books describing African exploration. Therefore even the uninitiated would be struck by the extraordinary height and formation of the termite hills round about the Baringo district. This

Photos by Sir Harry Johnston

A LENDU WOMAN FROM THE WEST COAST OF ALBERT NYANZA

A NATIVE NEAR MOUNT ELGON

AN ANDOROBO (SEE PAGE 221)



Photos by C. E. Akeley

ANDOROBO FAMILIES IN THE FORESTS OF MOUNT KENIA

Photo by C. E. Akeley

ON THE ATHI PLAINS

peculiar shape of ant-hill commences as soon as one has descended from the upper part of the Rift Valley to the level of Lake Baringo, and I believe continues northward toward Abyssinia.*

The scenery of the Rift Valley is very grand, especially when seen from above. I have stood at one point near the northwestern edge of the Elgeyo escarpment and looked down a sheer 5,000 feet on to a gleaming river which threaded its way through a lake and numerous pools. Here, coming from the north, begin those splendid forests of conifers (two species of juniper and a yew) so characteristic of this plateau region. Away to the west toward the great blue mass of Elgon, the country is of noble appearance; splendid rolling downs of short rich grass, patches of woodland, acacia forests, and vegetation of more tropical appearance along the valleys of the watercourses. For the most part the downs, over which one's gaze can stretch 50 or 60 miles as they gently slope toward the north or toward Victoria Nyanza, are clothed with soft, silky grass, which takes a pale pink, mauve, gray, or russet sheen as the wind bends the flowering stems before it.

*The celebrated Rift Valley begins in German East Africa at an altitude of about 2,500 feet. It rises in height as it is followed northward till at Lake Navaisha the altitude is 6,300 feet. The general level of the Rift Valley then slowly decreases till at Lake Rudolf it is only 1,200 feet above sealevel, and from this point, with a few occasional upheavals and ridges excepted, it dwindles down to sealevel at the Gulf of Aden. See also page 209.

HERDS OF GIRAFFES

Over this plateau (where the traveler must beware of following any presumed native path, since it is only a cunning device leading up to a game-trap, an oblong pitfall hidden with sticks and cut grass) roam countless wild animals at the present day, and I earnestly pray may continue to roam there, completely protected from the British sportsman and his oft-times insensate ravages. The nomad natives who make these game-pits secure too small a proportion of the antelopes to be taken into much account. Here may be seen large herds of giraffes as one might see cattle peacefully standing about in an English park. These giraffes are the finest development we yet know of the northern form—of that species of giraffe which extends all over northern Central Africa from east to west, with the exception of Somaliland, where a peculiarly colored species is developed. In color the adult males and females become so dark on the upper part of the body that, seen from a distance, they seem to

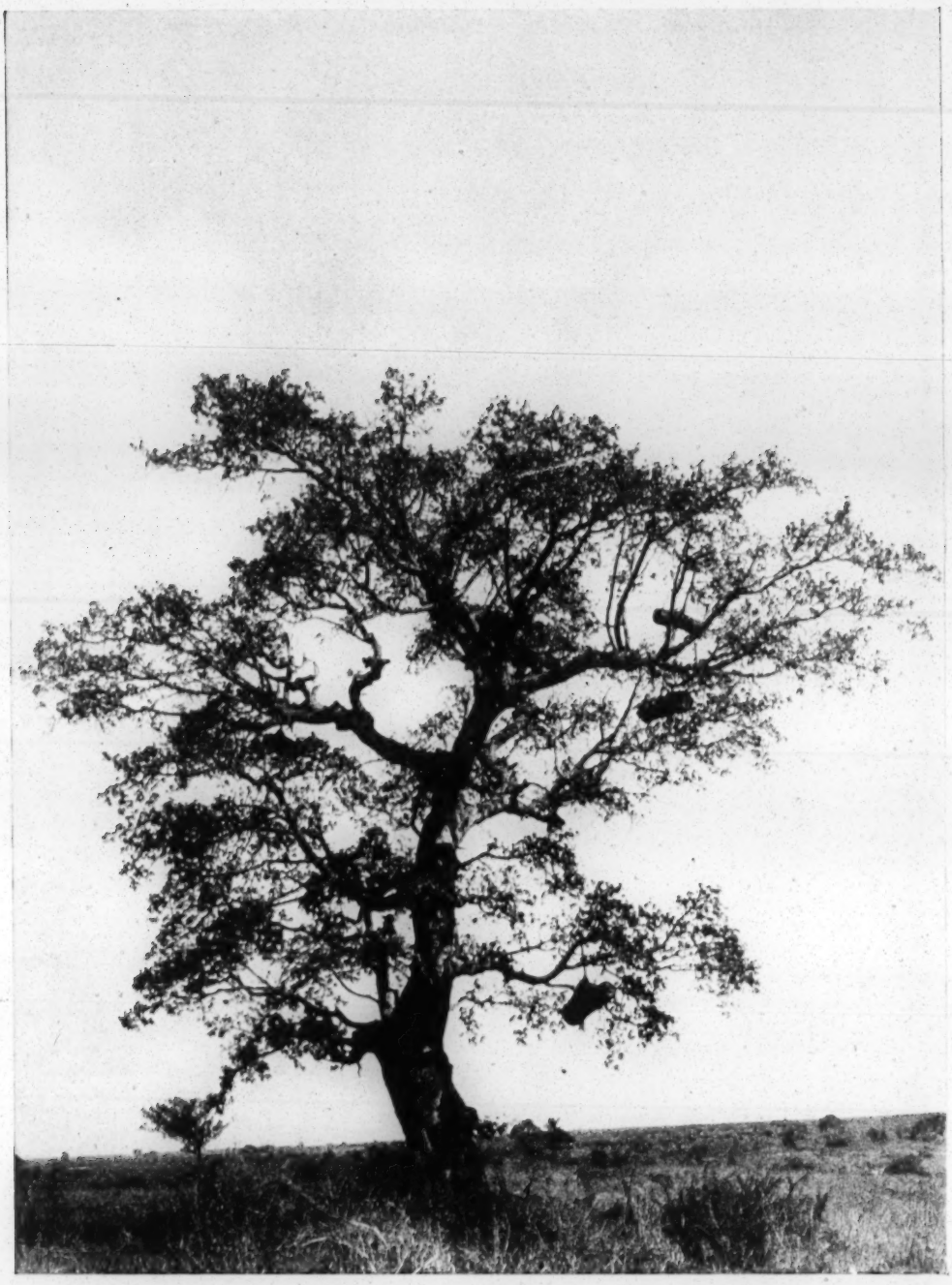
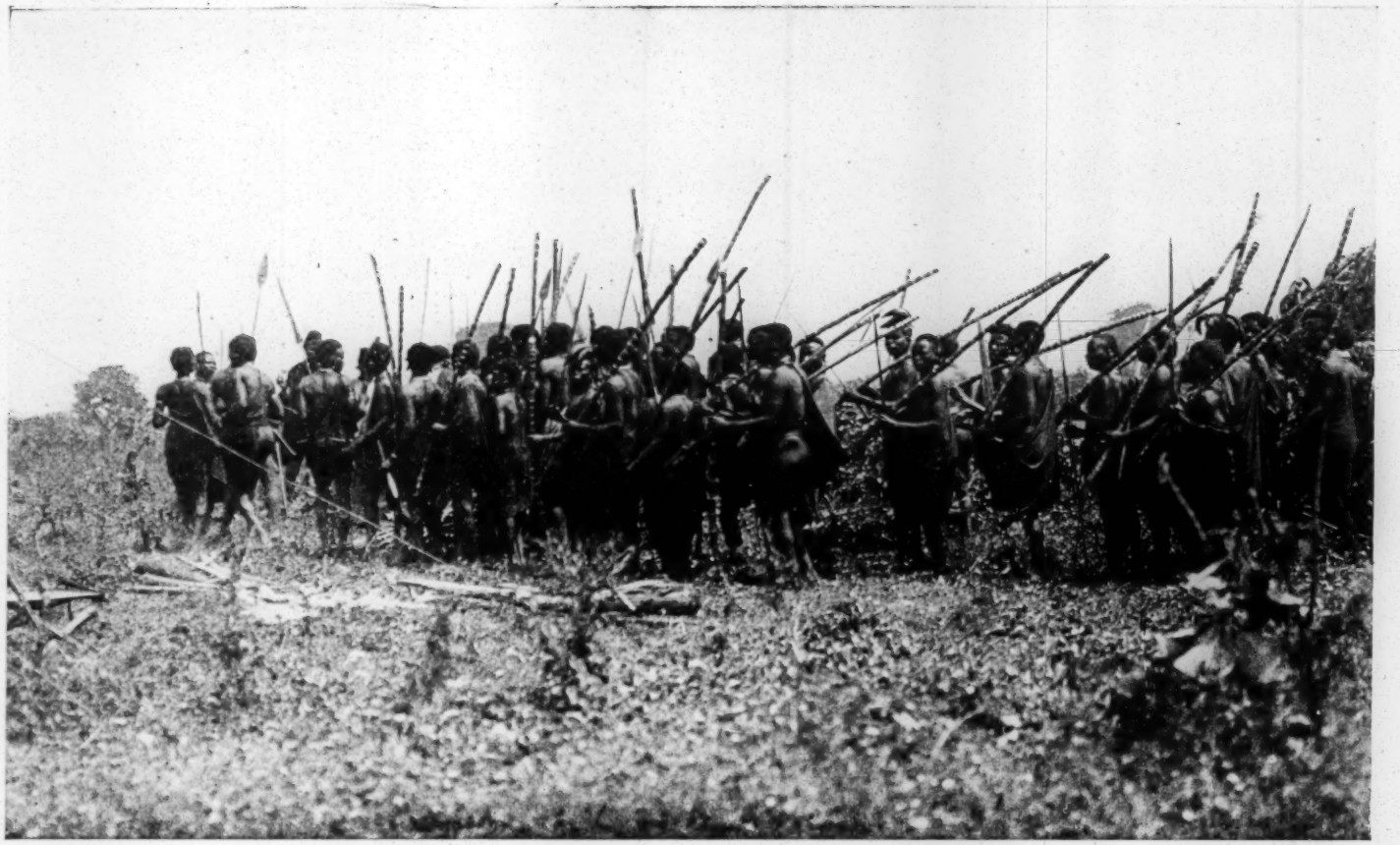


Photo by C. E. Akeley

NATIVE BEE HIVES NEAR MOUNT KENIA (SEE PAGE 221)



NATIVES CARRYING SUGAR CANE NEAR MOUNT KENIA

Photo by C. E. Akeley

The sugar cane grows very luxuriantly in the regions near Victoria Nyanza or near rivers. The natives never made sugar from it before the arrival of Indians and Europeans. They only chewed the stalk of the cane for its delicious juice

be black or purple with white bellies, and are therefore most striking objects, especially when they stand, as they often do, on the tops of low ant-hills, from which they survey with their keen sight all the surrounding country. When a giraffe is thus poised on a mound like a sentinel he is absolutely rigid, and moves his head so little that the appearance of immobility, coupled with the extraordinary shape—the short body and the enormously long tapering neck—give the traveler the fixed impression that he is looking at an unbranched tree-trunk which has been blasted by lightning or a forest fire.

But giraffes are not the only large game on these glorious downs. Elephants may be seen in great herds close by, but they affect rather more the scattered forest than the open plains. Where you see the giraffes you see also numerous rhinos in couples, male and female, or a female alone with her snub-nosed calf. The rhino looks a purple-black or a whitish-gray as he moves through the long grass, according as the light strikes him.

AMAZING SWARMS OF GAME

It is a glorious sight, say an hour after the sun has risen and the shadows are beginning to shorten, to traverse this grass country and see this zoological garden turned loose. Herds of zebras and Jackson's hartebeest mingle together, and in face of the sunlight become a changing procession of silver and gold, the sleek coat of the zebras in the level sunlight mingling their black stripes and snowy intervals into a uniform silver-gray, while the coats of the hartebeests are simply red-gold. Dotted about on the outskirts of this throng are jet-black cock ostriches with white wings, a white bobtail, and long pink necks. Red and silver jackals slink and snap; grotesque wart-hogs of a dirty gray, with whitish bristles and erect tails terminating in a drooping tassel, scurry before the traveler till they can bolt into some burrow of the ant bear.

Males of the noble waterbuck, strangely like the English red deer, appear at a distance, browsing with their hornless, doe-like females, or gazing at the approaching traveler with head erect and the maned neck and splendid carriage of Landseer's stags. Gray-yellow reedbuck bend their lissom bodies into such a bounding gallop that the spine seems to become concave as the animal's rear is flung high into the air. The dainty *Damiliscus,* or sable antelope, with a coat of red, mauve, black, and yellow satin bordered with cream color, stands at gaze, his coat like watered silk as the sunlight follows the wavy growth of the glistening hair. Once black buffalo would have borne a part in this assemblage, but now, alas! they have all been destroyed by the rinderpest. The eland still lingers in this region, but seems to prefer the scattered woodland to the open plains. Lions and leopards may both be seen frequently in broad daylight, hanging about these herds of game, though apparently causing no dismay to the browsing antelopes.

LIKE AN ENGLISH LANDSCAPE

On the different plateaus between the Victoria Nyanza and the Rift Valley you travel through a beautiful country, with a climate like an English June all the year round, with beautiful forests and land obviously fitted for grain cultivation. There is much country of this style in western East Africa, with no sign of human habitation, all the natives having been exterminated at one time and another by intertribal wars. This land is rapidly being settled by Englishmen, Boers, and possibly a few Italians.

The scenery between 7,000 and 10,000 feet in altitude reminds me so much of the land I live in (the south of England), and the resemblance is not even entirely superficial, because you have there so many familiar wild flowers, not perhaps of the same species as in England, but certainly of the same genus. Of course, to anybody who has been a long way from home in tropical Africa, with the prospects of a tedious 7,000-mile sea voyage between him and home,

it makes one feel sadly happy to see such familiar friends as violets, buttercups, and the like one is familiar with in Europe.

THE COLOBUS MONKEY

The forests which clothe the eastern descent of the Nandi Plateau are extremely dense, full of magnificent timber, with a mingling of conifers, yews, witch-hazels, and some of the timber and vegetation more characteristic of equatorial regions—a combination, in short, of the tropical forest with the temperate. In these extremely dense woods, which it is impossible for a European to penetrate without a pioneering party to cut a way, but which are nevertheless the hunting ground of the nomad Andorobo, the two most characteristic creatures are the colobus monkey and a large species of tragelaphus antelope, which resembles in some respects the nyala of South Africa and in others the broad-horned tragelaph of the Gaboon. The presence of this tragelaphus is often made known by its peculiar bark, but, although well known to the Andorobo, it has very seldom been seen by Europeans.

But the colobus monkey (which is found throughout the Uganda protectorate and much else of tropical Africa, wherever the forest is dense enough, no matter whether it be cold of climate or always hot) is a far more common sight. The Andorobo who lurk in these forests live mainly on the flesh of this creature, which they shoot from below with poisoned arrows. Having satisfied their hunger on its flesh, they sell the skin, with its long, silky, black and white hair, and its tail, with the immense silky plume at the end, to the Masai or other warlike races, who make it into head-dresses or capes, or else to the European or Swahili trader. As the Andorobo are rapidly bringing the extermination of the colobus within view, its destruction and the sale of its skin are now prohibited, though it will be a long time before the prohibition is understood and obeyed by these wild men of the woods.

LITTLE-KNOWN ANIMALS WHICH PRESIDENT ROOSEVELT MAY FIND

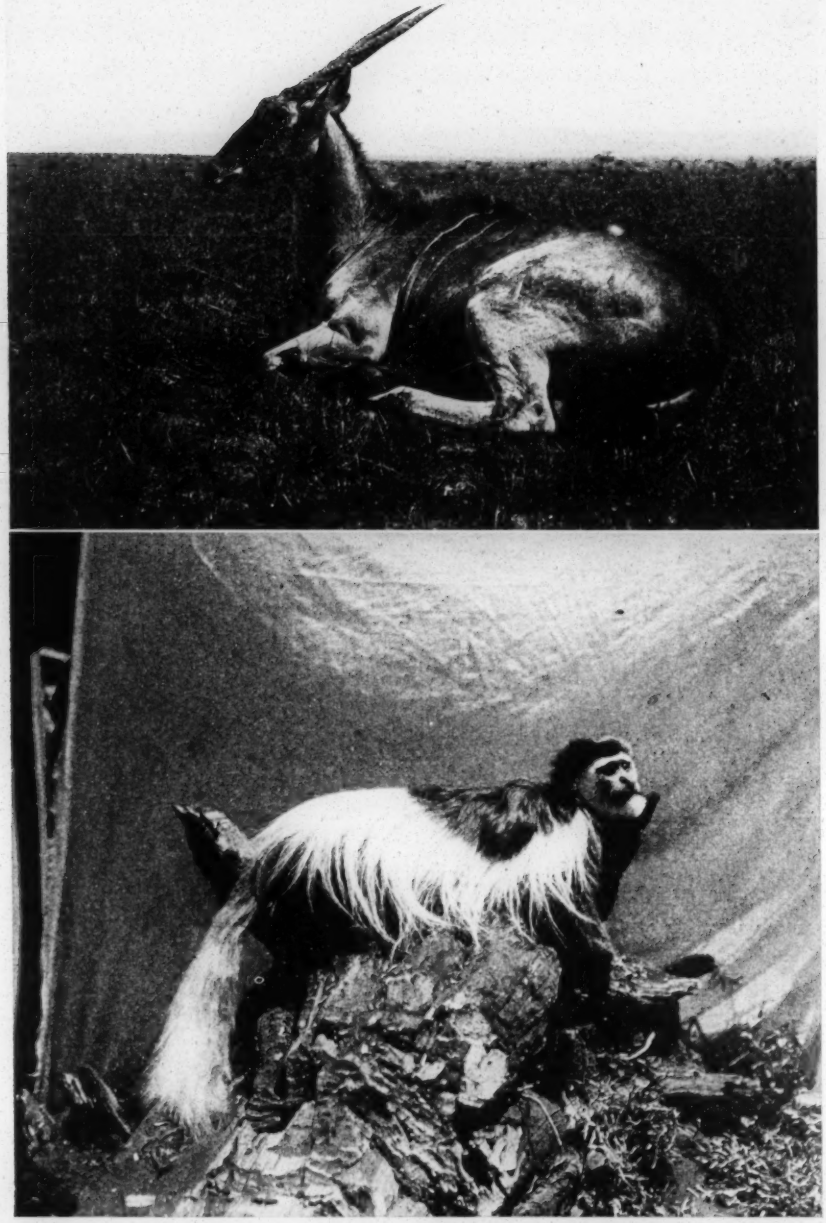
These magnificent forests are remarkable in that they are vestiges of the ancient forest belt of Africa that stretched from sea to sea undoubtedly from the Indian to the Atlantic Oceans; and a remarkable feature at the present day is that many of the forest birds, beasts, spiders, and scorpions of extreme West Africa are more closely allied to the forms of eastern India and Malaysia than they are to those of eastern Africa or western India. In the forests of Mount Kenia and in the Mau, Sotik, and Nandi forests we meet with many creatures that had heretofore been associated only with West Africa in their distribution. In these East African forests you have the magnificent Bongo tragelaph (misnamed "antelope"), which is brilliant orange red with broad white stripes, and also the giant black forest pig, which was only quite recently discovered; and it is probable that if President Roosevelt ransacks these East African forests in thorough-going fashion he may find some other beasts and birds as yet unknown to science.

Take, for encouragement, the case of the okapi. That animal was absolutely unknown to us a few years ago. The first hint of it was derived from Stanley. When I was going out to Uganda and East Africa, in 1899, Stanley, who was an old and dear friend of mine, gave me a farewell dinner at his house in London and talked over the things I might discover. He said that there were two creatures he should like to know more about among the animals of the great forests. One seemed to be like a donkey; the natives had told him they used to catch a wild donkey in pitfalls. "It is very strange," said Stanley, "that a donkey should exist there. I also believe I saw a pig bigger than any of the swine known to us at the present day. It was once when I was stumbling along through the forest when a large black pig rushed across my path and nearly knocked me over, but when I had recovered my wits

BURCHELLS ZEBRA ON THE ATHI PLAINS Photos by C. E. Akeley

Zebras may be seen in thousands on the Athi plains and in the neighborhood of Lake Naivasha

A RHINOCEROS (SEE PAGES 233 AND 253)



Photos by C. E. Akeley

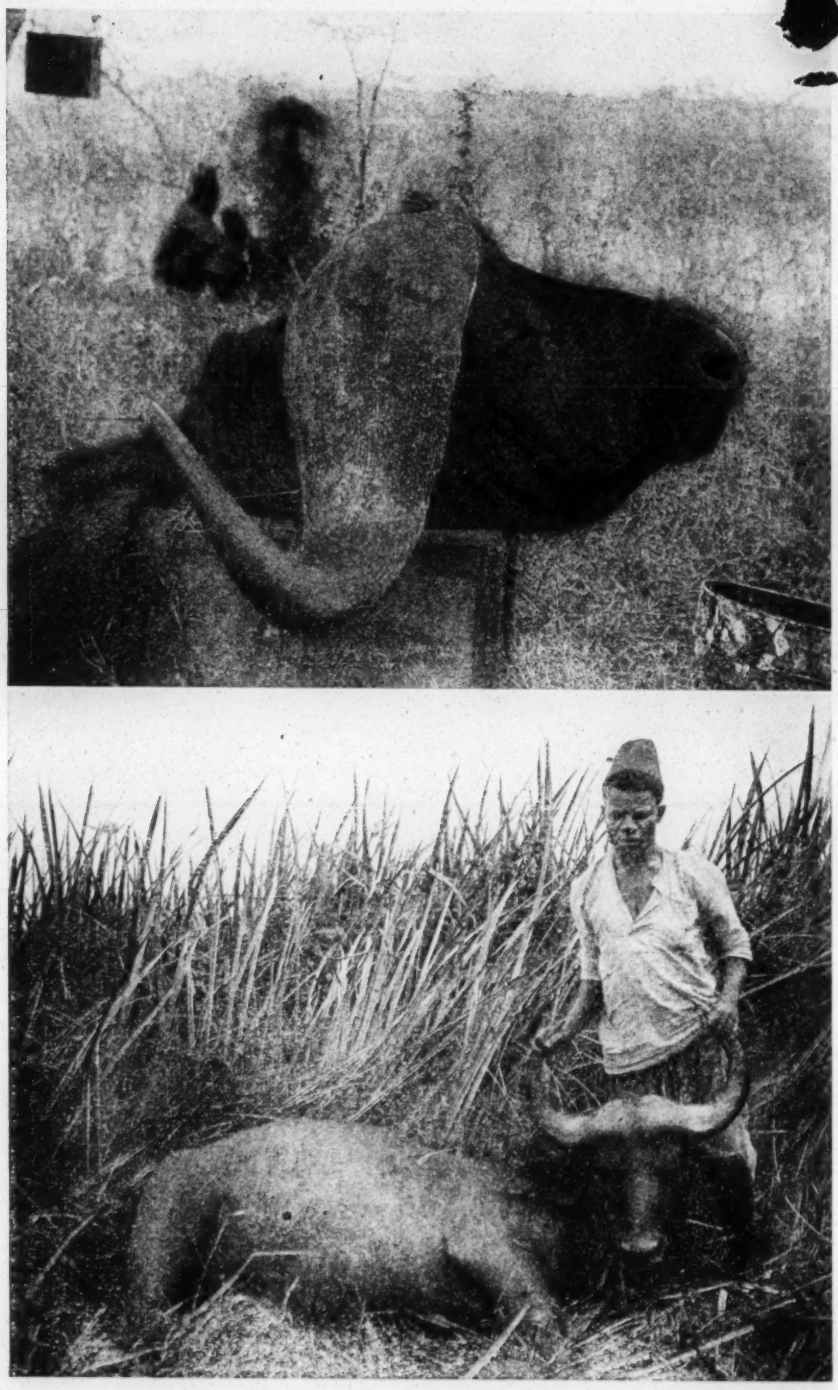
COW ELAND ON THE ATHI PLAINS

COLOBUS MONKEY (SEE PAGE 228)

Photos by C. E. Akeley

HIPPOPOTAMUS IN THE RIFT VALLEY (SEE PAGE 245)

IN THE JUNGLE NEAR MOUNT KENIA



Photos by C. E. Akeley

BUFFALO IN THE KENIA PROVINCE

it had escaped into the almost impenetrable forest."

Now this giant pig was actually discovered first of all in Stanley's Ituri forest by N. E. Copeland. Afterward a different species was brought to light in East Africa jointly and simultaneously by a civilian, Mr. Hobley, and an army officer, Captain Meinertzhager. Then it was rediscovered again by Baron Maurice de Rothschild in the Nandi forests. Finally a third species was found by Mr George L. Bates in the Kameruns.

I believe President Roosevelt is anxious to secure for science an undoubted specimen of the white or square-lipped rhinoceros, which has been reported to exist in the northwestern parts of British East Africa. The white rhinoceros for a long time was thought to be confined in its distribution to Africa south of the Zambesi, but where, owing to the somewhat reckless slaughter of wild game in the years before we appreciated the value of them, had become nearly if not quite extinct. A few, however, still linger in Zululand, perhaps in the vicinity of the upper Zambesi. It is interesting now to know that this creature has been found in western Uganda and on the White Nile. There is an intimate connection between the fauna of extreme south Africa and that of the regions of the Nile Valley. And of course there is a still more interesting connection between the fauna of today in eastern Africa and the pliocene and early pleistocene fauna of Europe as far north as southern England, in days when man was already man and hunted these creatures such as you would see them being hunted today by negro hunters. Among the species of rhinoceros inhabiting Europe in the pleistocene were probably representatives of the pointed-lipped form and of the square-lipped species.

PICTURESQUE NATIVES AROUND LAKE VICTORIA

The people inhabiting the settlements around Victoria Nyanza will be probably for a year or so still a source of amusement to the excursionists whom the Uganda railway will bring from the east coast of Africa to the Victoria Nyanza; for they will see before them coal-black, handsomely formed negroes and negresses without a shred of clothing, though with many adornments in the way of hippopotamus teeth, bead necklaces, earrings, and leglets of brass. They are very picturesque as they strut about the streets in their innocent nudity, decked with barbaric ornaments.

The men wear not one earring, but fifteen! Holes are pierced all round the outer edge of the ear, and in these are inserted brass fillets, like melon seeds in shape, to which are attached coarse blue beads of large size and dull appearance. These beads the knowing tourist should collect while they can be purchased, as they are of mysterious origin and great interest. They are not, as he might imagine at first sight, of European manufacture, but have apparently reached this part of the world from Nubia in some very ancient trading intercourse between Egypt and these countries of the upper Nile. As the figures thus exhibited are usually models for a sculptor, this nudity is blameless and not to be discouraged; moreover, it characterizes the most moral people in the Uganda protectorate.

This ebon statuary lives in pretty little villages, which are clusters of straw huts (glistening gold in the sun's rays), encircled with fences of aloes, which have red, green, and white mottled leaves, and beautiful columns and clusters of coral-red stalks and flowers. There are a few shady trees that from their appearance might very well be elms but are not, and some extraordinary euphorbias, which grow upright with the trunk of a respectable tree and burst into uncounted sickly green spidery branches. Herds of parti-colored goats and sheep, and cattle that are black and white and fawn color, diversify these surroundings with their abrupt patches of light and color.

They belong to the better class of Bantu negroes, of that immense group of African peoples which has dominated the whole southern third of Africa from the regions of the White Nile and Victoria

Nyanza to the Upper Congo, Kamerun, Zanzibar, and Zululand. This great Bantu family is noted for the beauty and relative simplicity of their languages. The Bantu languages form a most interesting subject of study, because they are obviously of quite recent origin and constitute a refreshing contrast to the linguistic conditions existing in all that vast Sudan and in western Guinea, where nearly every tribe speaks a language differing radically from that of the next tribe. Once you cross the Bantu border to the south you come to a family of languages almost as closely interrelated in its members as is the Aryan group of Eurasia, so that when once you master one Bantu language it is relatively easy to pass on to another. This gives us extraordinary facilities for entering into direct communication with the people of the southern third of Africa.

THE LARGEST KNOWN VOLCANO IN THE WORLD

The crater of Mount Elgon, on whose slopes it is probable the President will also do some hunting, is about 14,200 feet above sealevel. I believe I am right in saying that Elgon is the largest known volcano in the world. The superficies of the whole mass of Elgon is about equal to the area of Switzerland. It is almost as though Switzerland were concentrated into a single huge mountain mass. The crater is perhaps 30 miles across.

Many caves are found around the circumference of Mount Elgon at an average altitude of 8,000 feet and at the bottom of abrupt terraces. I think the caves were formed originally by the action of water, but undoubtedly they have been enlarged by the work of man. They have been inhabited for a period of unknown length. In fact, there are vague indications that Elgon was a great trading resort in quite ancient times; that between Hamites and negroes Egyptian trade goods coming from the Land of Punt* reached Mount Elgon, where they were exchanged for the products of the forest negroes. We have also evidence that the blue beads that have been dug up there, and which are sought for as great rareties, are of ancient Egyptian origin.

*Somaliland.

These waterfalls are a very common feature along the terraces of Elgon. They form splendid cascades, and in nearly every case they mask a cave. I am inclined to think that the cave represents the original channel of a stream which has been blocked by lava rock and the stream eventually flowed over its closed cañon.

Passing under a 200-foot cascade of water we find the entrance to a dry, comfortable cavern. Thus the entrance to the cave-man's home is completely masked from the outside by a stream of water. In several cases the entrance to the cave has been defended by a rude stockade, with huge stones piled on top of branching boughs. There are remains in France and other parts of Europe showing that the cave-men of prehistoric times adopted almost the same method of restricting and defending the access to their caverns. One fascinating aspect of the study of backward parts of Africa is like mounting Mr Wells' time machine and traveling backward to vanished phases of European life in the stone age. *Paleolithic* man still lived on in Tasmania till 1871. In negro Africa you can find existing nearly all the stages of culture through which our own ancestors passed in Britain and in other parts of Europe.

Giant bamboos are found on the East African elevated plateaus above 7,000 feet, growing in some places to about 100 feet in height.

A native beau of this region dresses his hair into little balls with red clay and mutton fat and decorates his ears with white flakes cut from the large Achatina snail shells.

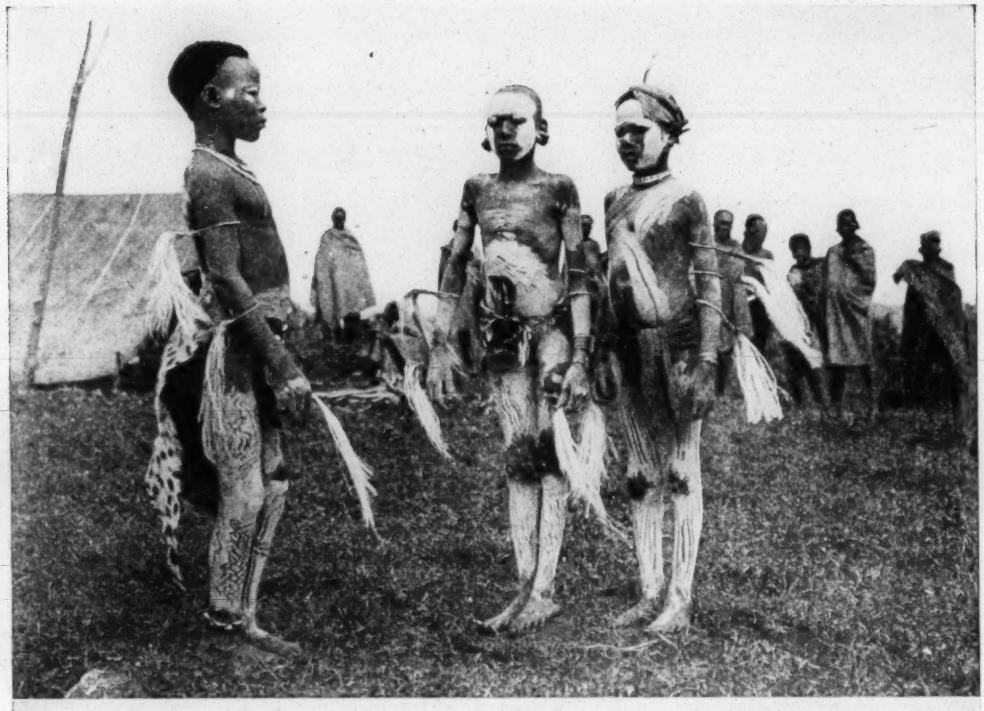
THE REMARKABLE KINGDOM OF UGANDA

The people of Uganda present a very striking contrast after having traveled five hundred miles through a land of absolute nudity and finally reach a people who make it an offense to go about insufficiently clothed.

FISHERWOMEN AND THEIR BASKETS: VICTORIA NYANZA

A NATIVE ROAD IN UGANDA (SEE PAGE 243)

"The scenery is different, the vegetation is different, and, most of all, the people are different, from anything elsewhere to be seen in the whole range of Africa. . . . Under a dynastic king, with a parliament and a powerful feudal system, an amiable, clothed, polite, and intelligent race dwell together in an organized monarchy. . . . More than two hundred thousand natives are able to read and write. More than 100,000 have embraced the Christian faith. . . . There is a regular system of native law and tribunals; there is discipline, there is industry, there is culture, there is peace. . . . Submission without servility or loss of self-respect is accorded to constituted authority, . . . and then Uganda



Photos by Dr C. E. Akeley

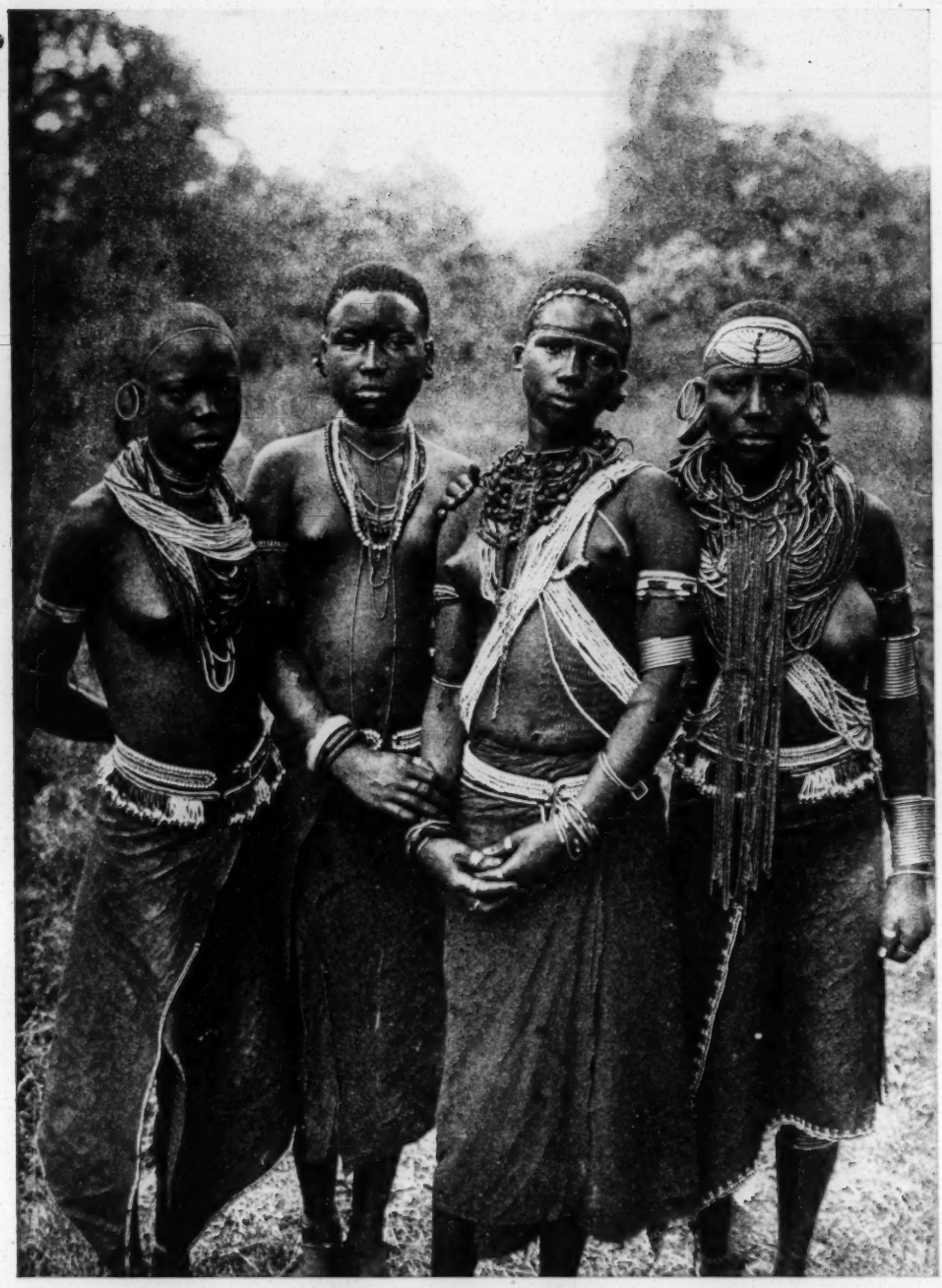
BOYS DRESSED IN REGALIA INCIDENT TO THEIR FIRST TRIBAL CEREMONY: KENIA PROVINCE

Photo and Copyright, 1909, by Underwood & Underwood, New York

NATIVES READY FOR A CEREMONIAL DANCE IN HONOR OF THE YOUNG MAN IN THE FOREGROUND, WHO HAS, SINGLE HANDED, KILLED A LION WITH A SPEAR

Photo and Copyright, 1909, by Underwood & Underwood, New York

A SCENE IN THE FOREST OF EAST AFRICA



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GIRL FRIENDS IN A VILLAGE OF EAST EQUATORIAL AFRICA

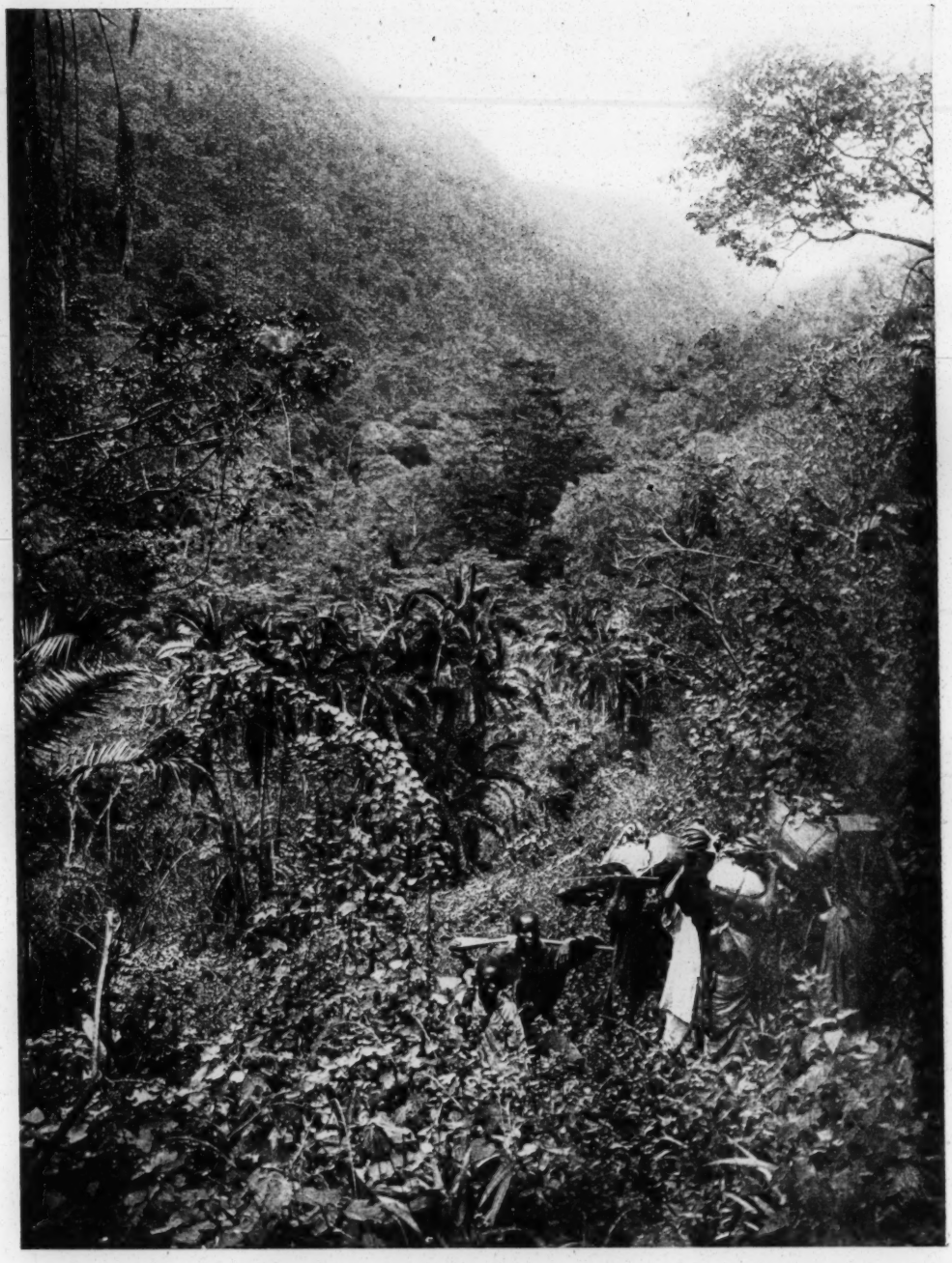


Photo and Copyright, 1909, by Underwood & Underwood, New York

A FOREST SCENE TYPICAL OF THE SLOPES OF MOUNTS KENIA AND RUWENZORI, WHERE PRESIDENT ROOSEVELT WILL HUNT

is from end to end one beautiful garden, where the staple food of the people grows almost without labor, and almost everything else can be grown better and easier than anywhere else.*

The administrative capital of Uganda, where the headquarters of the protectorate administration are established, is remarkable for its lovely scenery. This is situated at Entebbe, on the long, indented peninsula of that name which stretches many arms out into the lake. "Entebbe" means in the native language "a throne." There are lofty green downs on this peninsula, which command a splendid view over the coasts and islands of the northwestern part of the lake. It is round the foot of these downs, on their southern aspect, that the European settlement is built. The eastern side of Entebbe is tropical forest of exceptional magnificence, which has been cleverly transformed by Mr. Alexander Whyte into botanical gardens, some day to become notable for their beauty.

One prominent feature in the landscape of Entebbe, and in fact of much of southern Uganda, is the lofty incense-trees (*Pachy lobus*). These grow to a great height and are perennially covered with a rich green pinnate foliage. The rugose trunk of thick girth sweats a whitish gum, which, scraped off and burnt on hot coals, produces the smoke of fragrant incense. These trees produce at certain seasons of the year enormous quantities of blue-black plums, which are the favorite food of gray parrots, violet plantain-eaters, and the great blue *Corythoeola*, besides monkeys and hornbills. Wherever, therefore, there is one of these trees growing those who live in the neighborhood may enjoy all day long the contemplation of the gorgeous plumage of these birds, the antics and cries of the parrots, and the wild gambols of the monkeys.

THE NATIVE CAPITAL OF UGANDA.

The native capital of Uganda is, perhaps, best styled Mengo, that being the name of the king's quarter. Mengo is like ancient Rome—only much more so—a city of seven hills, as any one living there and obliged to move about knows to his cost. Each suburb or portion of the straggling town of some 77,000 souls is a hill or a hillock in itself, with an ascent or descent so steep as often not to be compassed on horseback. In between these hills or mounds there are bottoms of marsh, or there are marshy streams which slowly percolate through dense vegetation. Yet sections of the town inhabited by the little king and his court, the native gentry, and the common people are clean and picturesque. Reed fences of a kind peculiar to Uganda, which, by the interlacing reeds, exhibit a bold pattern enclose the ground on either side of the broad red road. Behind these reed fences are numerous courtyards in which bananas grow, and at the end of each series of yards is the closely thatched residence of some family or household.

Everything bears a neat, swept-up appearance, and the handsome trees and general richness of vegetation round the dwellings make it a city of gardens. Along some of the roads there must be straight perspectives of one or more miles in length, and the breadth of the avenues has about it something royal and suggestive of a capital. Mission buildings, with cathedrals in brick and stone, or in humbler materials of cane, thatch, and palm poles, rise from three of the great hills.

A MOST HOSPITABLE AND KINDLY PEOPLE.

The people are extremely hospitable. On my journey through the kingdom, the local chiefs had sent out to hundreds of their people, and each came in bearing at least a bunch of bananas. Some of the headmen even brought cows, goats, a sheep, or anything that they could think of that would gratify the white man. They are the most naturally cultivated of any of the African natives with whom I came in contact. How they acquired this native civilization is not yet clearly known. A more charming people you could not meet in Africa. Their tact is really remarkable. They would send spies into my camp to find out my tastes

*Winston Churchill, M. P.

and idiosyncrasies. Thus they learned that I was especially fond of tea between five and six o'clock in the afternoon. Then they would say to themselves, "He will start at such and such a time." So they would arrange a resting place near the road, set a table, and lay it with a clean cloth. Then they would have the kettle boiling at the right time, so that just as I reached the top of some hill the tea would be poured out and handed to me in a shady arbor.

THESE PEOPLE ARE RELATED TO THE ANCIENT EGYPTIANS

The aristocracy of the western regions of Uganda, the Bahima, in their features and traditions suggest a far-off affinity with ancient Egypt. They must have penetrated further and further south, and wherever they went they were received as demi-gods by the forest negroes. The actual word for demigod, "spirit," is the same as the appellation of these aristocrats (Bachwezi) at the present day. They have an almost Caucasian profile, but they have acquired typically negro hair. The Bahima are the cause of the hallucination existing fifty or sixty years ago at Zanzibar, that there was a white race living on the Mountains of the Moon.

It was the infusion of this Gala or Hamitic blood into the races of Uganda (which consisted mainly of the ordinary black Negro stock grafted on to a preceding dwarfish race like the Congo Pygmies) that built up dynasties and kingdoms which in comparison with most Negro states were powerful, well organized, and endowed with some degree of indigenous civilization. This infusion raised the peoples of Uganda, and the countries of the west coast of the Victoria Nyanza to a position of comfort and refinement a good deal superior to the life led by the naked folk to the east and north of that lake, many of whom were still leading an existence no higher in culture than that of predatory carnivorous man in the lowest Stone Age.

The people of Uganda can recall their kings of a period as far distant as the fifteenth century. The genealogy of the Uganda sovereigns includes thirty-six names (prior to the present king); and if the greater part of the earlier names are not myths, this genealogy, reckoning an average fifteen years' reign to each monarch, would take us back to the middle of the fourteenth century.

Though the Uganda dynasty, no doubt, in its origin is Hamitic and of the same race from which most of the earlier inhabitants of Egypt proceeded, nevertheless, as for several hundred years it has married negro women of the indigenous race, its modern representatives are merely negroes, with larger, clearer eyes, and slightly paler skins. When these kingdoms on the Victoria and Albert Nyanzas flourished, their utmost knowledge of the outer world seems to have been a very vague perception that there was an Abyssinia, or a country to the northeast, which was a powerful kingdom inhabited by people of palish complexion; while in other directions their geography was bounded by the marshes of the Nile, the Congo Forest, Tanganyika, the steppes of Masailand, the cold Plateau of Nandi, and the mass of Mount Elgon.

ATTEMPTS TO TRAIN A WILD ELEPHANT.

One day a baby elephant was presented to me by an Uganda chief. It is a sad thing to relate, but three men were killed in attempting to capture the first elephant. I had expressed a wish one day for some elephants to experiment with in domestication, and the natives, with their usual desire to please me, were so ardent in their determination to gratify my wish and so determined in their pursuit of the young elephant that the mother elephant knocked over and killed three of them. But finally they succeeded in their object, capturing the calf, and to my great surprise it trotted into camp behind one of the men.

This little creature was at the time only four feet high. In two days it had become perfectly tame, and would follow a human being as readily as his own

mother. It was easy enough to feed him with milk, because all that was required was a bottle with a long neck. This bottle was filled with cow's milk diluted with water, and poured down the elephant's throat. Soon all that one had to do was to place the neck of the bottle in the elephant's mouth, and the intelligent creature wound its trunk around the neck of the bottle, tilted it up, and absorbed the contents. For several weeks the elephant throve and became a most delightful pet. It would allow any one to ride on its back, and seemed to take pleasure and amusement in this exercise. It would find its way through diverse passages into my sitting-room, not upsetting or injuring anything, but deftly smelling and examining objects of curiosity with its trunk.

At the same time we had in captivity a young zebra, which was also to be the pioneer of a domesticated striped horse. These two orphans, the elephant and the zebra, became greatly attached to each other, though perhaps there was more enthusiastic affection on the part of the elephant, the zebra at times getting a little bored with constant embraces. Alas and alack! both elephant and zebra died eventually from the unwholesomeness, to them, of cow's milk.

Several other elephants of the same age—that is to say, about four to six months old—were delivered into my hands, but all eventually died. Cow's milk appears to give these creatures eventually an incurable diarrhea, while all attempts at that early age to substitute for milk farinaceous substances have also resulted in a similar disease. I do not say that it is impossible to rear young elephants by hand for we have not made a sufficient number of experiments, but it is very difficult. I therefore favor the plan of attempting to catch elephants of perhaps a year old, at which age they do not require milk as an exclusive diet. One specimen of this age was caught and was readily tamed, and for aught I know is still alive in captivity. (See also page 252.)

GIGANTIC PAPYRUS.

There is a remarkable similarity about all the landscapes in Uganda. There are rolling, green downs rising in places almost into the mountains, and every valley in between is a marsh. This marsh is often concealed by splendid tropical forest. Sometimes, however, it is open to the sky, and the water is hidden from sight by dense-growing papyrus.

The broad native roads make as straight as possible for their mark, like the roads of the Romans, and, to the tired traveler, seem to pick out preferentially the highest and steepest hills, which they ascend perpendicularly and without compromise.

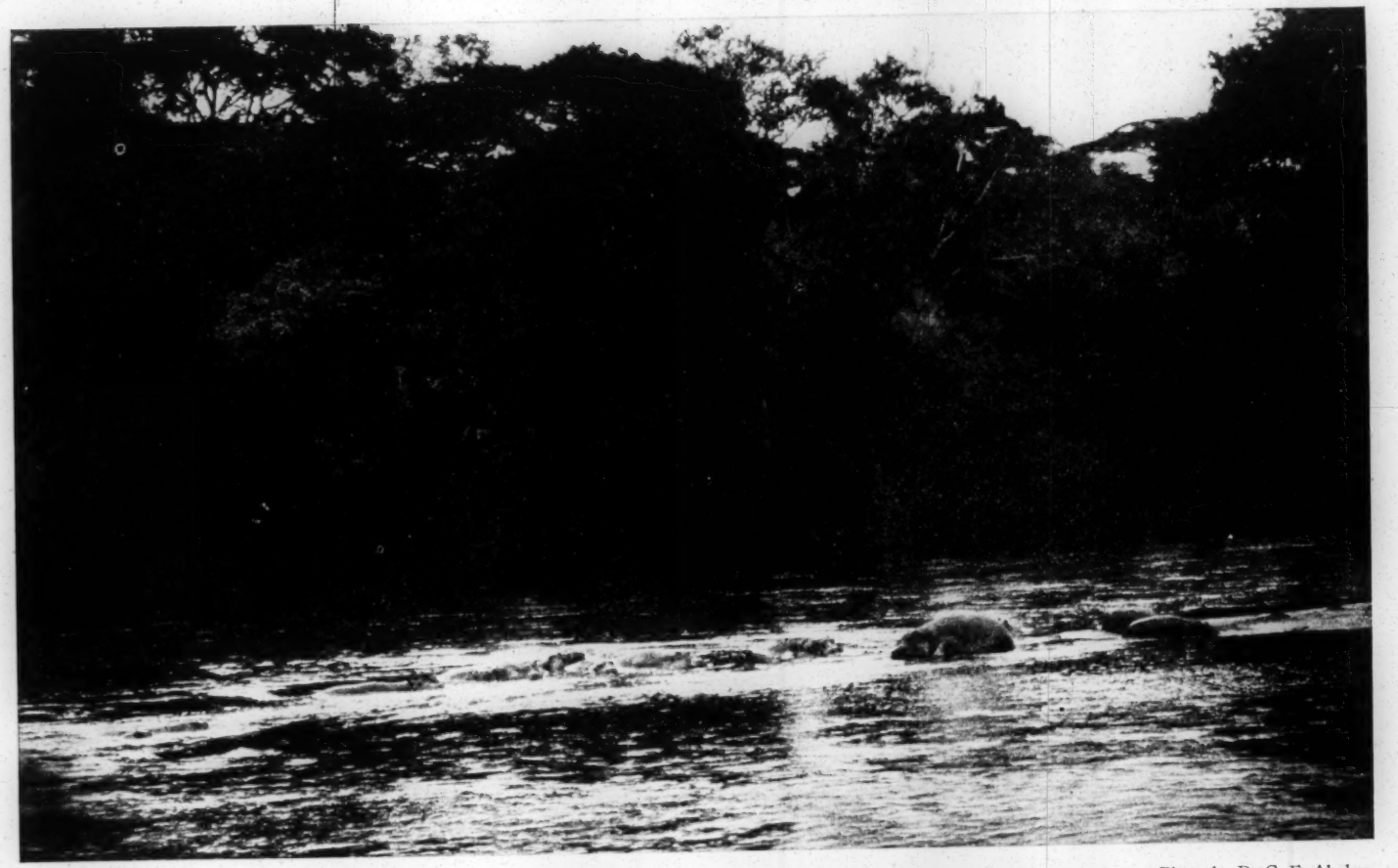
The road is as broad as an English country road, quite different from the ordinary African path (which is barely the breadth of the space occupied by men walking in single life). On either side of the road the grass grows high, perhaps to heights of seven or eight feet, but it is interspersed with gayer-flowering plants and shrubs. The road ascends a steep hill through this country of luxuriant grass. The hilltop reached and the descent begun, the traveler sees before him a broad marsh in the valley below. The descent to this marsh is possibly so abrupt that it is deemed wiser to get off the horse or mule and leave that beast to slither down sideways.

Looking on either side as the marsh is being crossed, the traveler will notice first of all the gigantic papyrus, which may be growing as high as fifteen feet above the water and interspersed amongst papyrus roots are quantities of fern, of amaranth, or "love-lies-a-bleeding," and the gorgeous red-purple *Dissotis* flowers, a yellow composite like a malformed daisy, and large masses of pink or lavender-colored *Pentas*. There are also sages and mints which smell strongly of peppermint, and a rather handsome plant with large white bracts and small mauve flowers.

In and out of this marsh vegetation flit charming little finches of the waxbill

MRS AKELEY'S LARGEST ELEPHANT, KILLED IN THE FORESTS OF MOUNT KENIA

Height, 11 feet 2 inches; tusks, 8 feet 10 inches long; circumference, 19½ inches; weight of tusks, 112 and 115 pounds (see pages 242 and 252)



HIPPOPOTAMI DISPORTING IN A RIVER OF BRITISH EAST AFRICA

Photo by Dr C. E. Akeley

The common hippopotamus is still found in every river with water enough to cover his recumbent body, and in nearly every lake or marsh in the Uganda Protectorate. The animal is very dangerous to navigation at the north end of Lake Albert and on the Upper Nile. He is consequently not much protected by the game regulations (purposely), as there is no immediate danger of his becoming extinct, for in the vast marshes he will be preserved from the white man's rifle, and will be out of the way of steamer routes. See page 267.

A LIONESS TRAPPED IN BRITISH EAST AFRICA (SEE PAGE 271)

type. One of them is particularly beautiful, with a body of black, white, and dove color and a crimson back. The next ascent of the inevitable hill which succeeds the marsh may lead one through a more wooded country, where, among many other flowering shrubs, grows a species of mallow (*Abutilon*), with blush-pink flowers in clusters, like dog-roses in general appearance.

The forests and marshes of Uganda abound in remarkable monkeys and brilliantly-colored birds to a degree not common elsewhere in tropical Africa; but the Kingdom of Uganda, as may be imagined from its relatively dense population—a population once much thicker than today—has been to a great extent denuded of its big game, and it is unlikely the President will spend much time there.

GORGEOUS DISPLAYS OF FLOWERS

Some of the forest trees of Uganda offer magnificent displays of flowers. There is one, the *Spathodea,* with crimson-scarlet flowers larger than a breakfast cup and not very dissimilar in shape. These flowers grow in bunches like large bouquets, and when in full blossom one of these trees aflame with red light is a magnificent spectacle. Other trees present at certain seasons of the year a uniform mass of lilac-white flowerets, as though they had been powdered from above with a lavender-colored snow.

The india-rubber trees and lianas have white flowers, large and small, with yellow centers exhaling a delicious scent like jasmine, but the blossom of one of these rubber trees is vivid scarlet. The *Lonchocarpus* trees have flowers in color and shape like the *Wistaria;* from the branches of the lofty eriodendrons depend, on thread-like stalks, huge dull crimson flowers composed of innumerable stamens surrounded by thick carmine petals. The *Erythrina* trees on the edge of the forest seldom bear leaves and flowers at the same time. When in a leafless state they break out into a crimson-scarlet efflorescence of dazzling beauty. The *Pterocarpus* trees have large flowers of sulphur-yellow.

Many creepers have blossoms of orange, of greenish-white, pink, and mauve. Some trees or creepers (*Combretum racemosum*) are like the *Bougainvillia,* throwing out wreaths and veils and cascades of the most exquisite mauve or red-violet, where the color is given by bracts, the flower itself being crimson and of small size.

Blue alone appears to be missing from this gamut of color in the forest flowers, though it is frequently present among herbaceous shrubs or plants growing close to the ground, and, so far as the trees are concerned, is often supplied by the beautiful species of turaco that particularly affect the forest, and by large high-flying butterflies.

Whatever may be the case in the Congo basin, where the forests often appear sadly lifeless, the woodlands of Uganda are full of color and noise from the birds, beasts, and insects frequenting them. Monkeys are singularly bold and frequently show themselves. There is the black-white colobus with the long plume-tail which has been already described; there is a large greenish-black *Cercopithecus,* and another species of the same genus which is known as the White-nosed monkey. This is a charming creature of bright colors—chestnut, blue-black, yellow-green, and gray, with a snow-white tip to its nose. I believe its specific name is *rufoviridis.* Bright-colored turacos are even more abundant in these Uganda forests, and there are green and red love-birds, gray parrots with scarlet tails, and the usual barbets, hornbills, shrikes, fly-catchers, bee-eaters, rollers—all of them birds of bright plumage or strange form.

ENORMOUS BUT SLUGGISH PYTHONS AND PUFF-ADDERS

There are other forest creatures that are not harmless sources of gratification to the eye. Lying among the dead leaves on the path may be the dreaded puff-adder, with its beautiful carpet-pattern of pinkish gray, black, lemon-yellow, and slaty blue, and with its awful head containing poison glands more rapidly fatal than those perhaps of any other viper.

Numerous pythons, from fifteen to twenty feet in length (generally disinclined to attack human beings, however), are coiled on the branches of the trees, or hang by their tails like a pendent branch, swaying to and fro in the wind. Their checkered patterns of brown and white are rendered very beautiful sometimes by the bloom of iridescence which imparts rainbow colors into the scales when the skin is new.

The natives think nothing of laying hold of the wild python, who may perhaps have coiled himself up in some hole, and however much the snake hisses and protests, it seldom seems to bite. Yet these snakes could crush a man between their folds, and do crush and devour numbers of sheep and goats. They seem, however, very loath to attack mankind and will allow extraordinary liberties to be taken with them. The vividly-painted puff-adders are as common as the pythons, and although their bite is absolutely deadly, they, too, seem too sluggish to attack unless by some blunder you tread on them and wait to see the consequences.

Therefore the snakes are far less an annoyance or an impediment to the exploration of these forests than the biting ants. These creatures are a veritable plague in moist, hot regions where there is abundant vegetation. I suppose they are sometimes at home and resident in their underground labyrinths, but they are a restless folk, forever seemingly on the line of march. They traverse forest paths in all directions along causeways of their own, worn in the soil by the passage of their thousands.

When you come across one of these armies of ants in motion, on either side of the main stream, which is perhaps only half an inch broad, there may be a couple of feet of biting warriors in a swarming mass on either side of the rapidly marching army of workers carrying pupæ. Sentinels are out far and wide in all directions, and if you pause anywhere within a few feet of this marching body of ants you will very soon feel the consequences in a series of painful nips as though from red-hot pincers. These warrior ants know no fear. They attack any creature which comes near their line of march, burying their powerful mandibles in the flesh, and will then let the head be torn from the body sooner than give way.

THE BANANA GROVES.

A description of Uganda would not be complete without a reference to the banana groves, which, from an agricultural point of view, form the distinguishing feature of this country. The cultivated banana is possibly not native to Africa in its origin. I believe botanists consider that it first diverged from wild forms of Musa in Eastern Asia, and, like all the other food products cultivated by the negro, traveled to tropical Africa from India at some prehistoric period. I, too, held this opinion once, but I cannot indorse it so heartily now, on reflection. I believe there is no record of the banana having been known to the ancient Egyptians.

It would, in any case, be difficult to make a native of today believe that his beloved food substance, which provides him with a mass of nourishing vegetable pulp, with a dessert fruit, with sweet beer and heady spirit, with soap, plates, dishes, napkins, and materials for footbridges, was not always indigeneous to the land he dwells in and of which it has become the distinguishing feature.

THE GORILLA AND OTHER STRANGE ANIMALS

In western Uganda beyond the Semliki River, the traveler can walk with a reasonable degree of comfort between the mighty trunks of the colossal trees, whose foliage at a height of 200 feet above the ground almost completely shuts out the sky. This is said to be the region more favored by the okapi than the districts of dense undergrowth. In the depths of these mysterious forests the natives assert that there are other strange animals besides the okapi. A creature which they described as like a pig, only about six feet

Photo from Bishop Hartzell

A NATIVE VILLAGE IN A BANANA GROVE: UGANDA

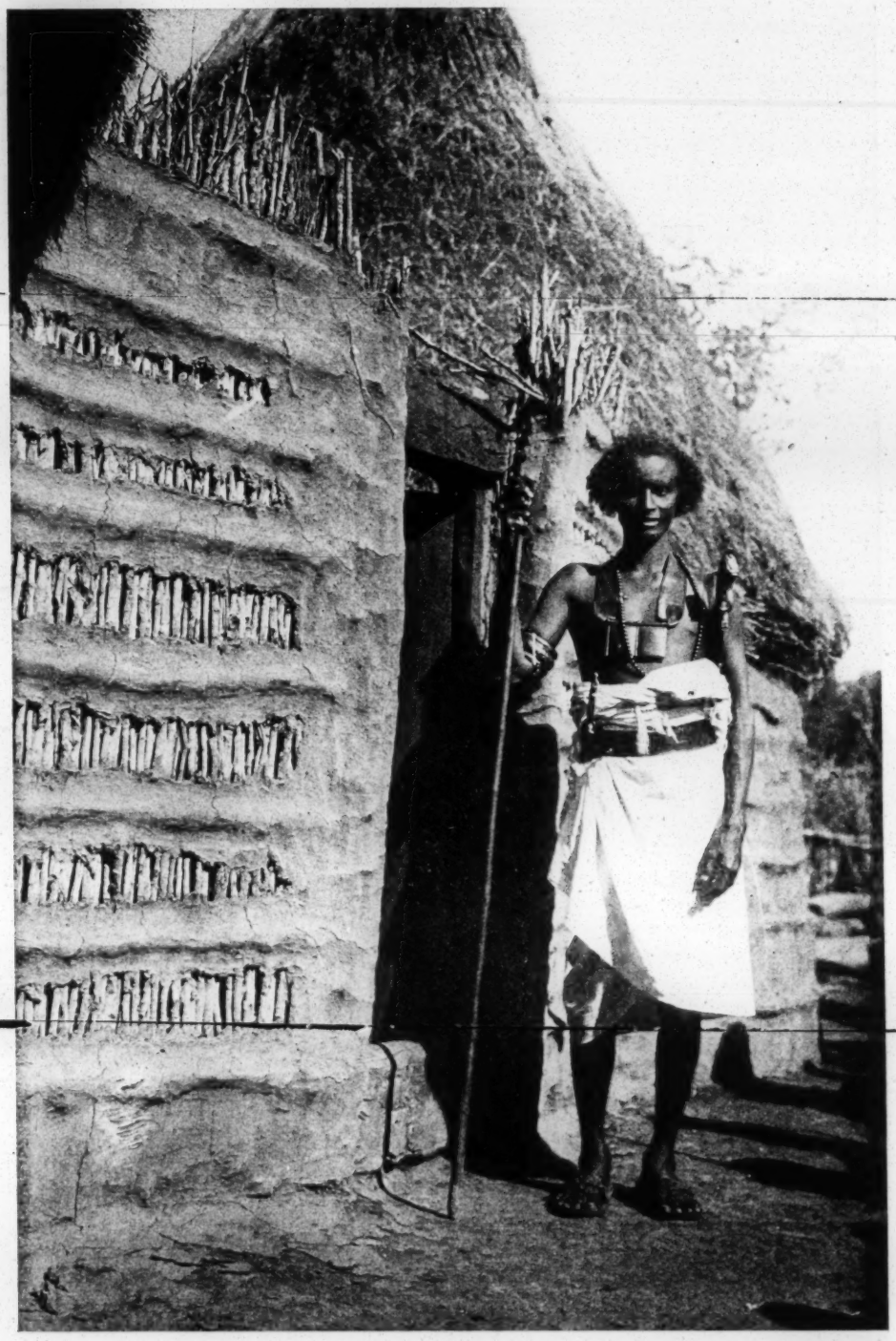


Photo from Gentilucci Italo

A GALA WARRIOR OF HAMITIC STOCK IN ITALIAN SOMALILAND (SEE PAGES 208 AND 242)

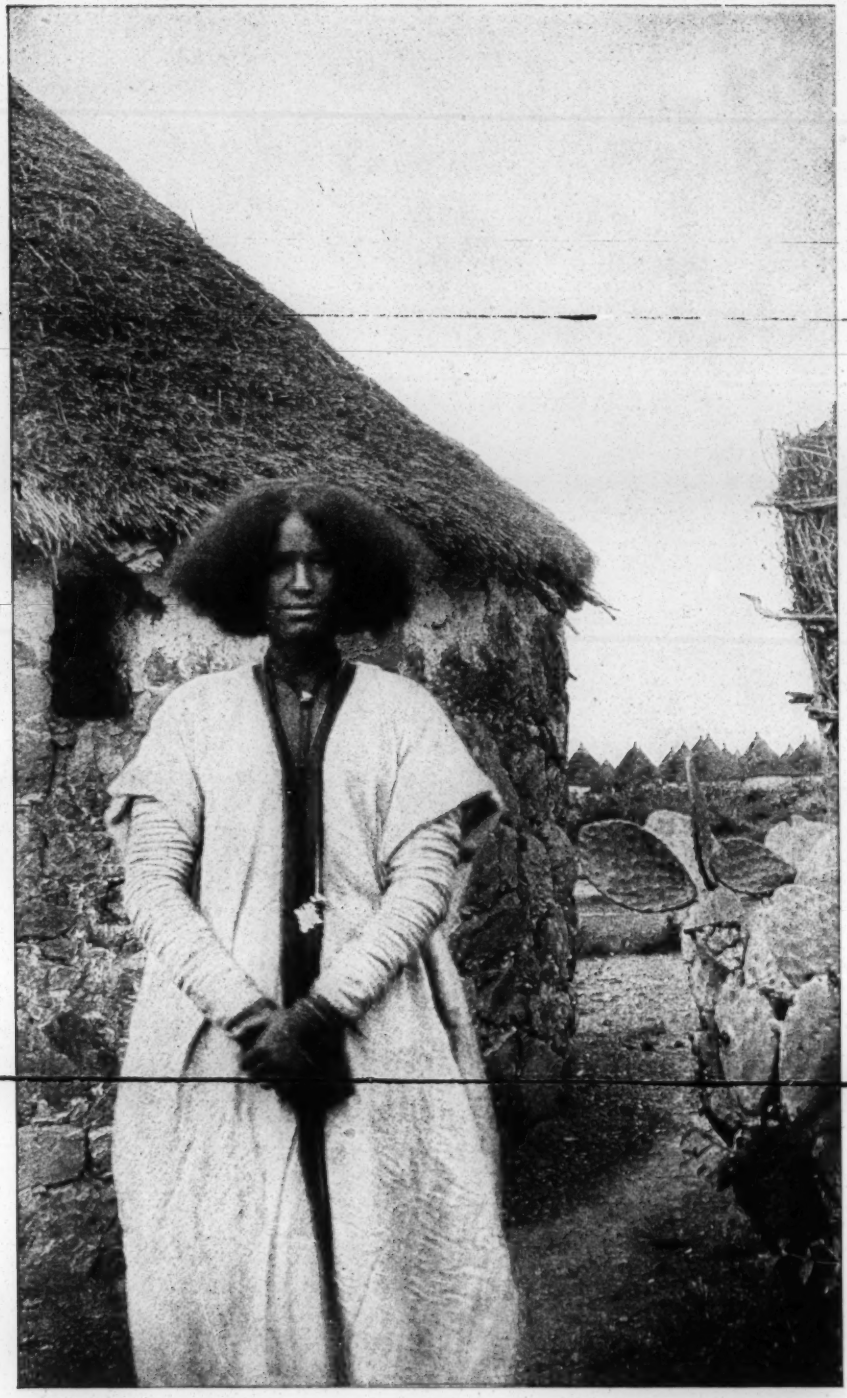


Photo from Gentilucci Italo.

A GALA WOMAN OF ITALIAN SOMALILAND

long and very stoutly built, may be the little forest-haunting Liberian hippopotamus. There are also stories of a large antelope, with a few white spots or markings, which has very disproportionately small horns in the male.

There is a great deal of talk about a huge manlike ape, but this apparently is nothing more remarkable than the gorilla. The range of the gorilla extends to within a few days' journey of the Semliki River, and specimens which have been killed by natives and photographed by Belgian officers (the photographs were shown to me) are nothing but gorillas, so far as I can judge. The hair of some of these gorillas was quite gray on the head and shoulders, no doubt from age. The leopards in this forest are exceedingly dreaded by the natives, and the stories of their man-eating habits are innumerable.

WILL THE AFRICAN ELEPHANT BECOME EXTINCT?

The elephant inhabits these forests in large numbers, but he appears to frequent with equal relish the savannahs and open grassy plains of the Semliki River and at the south end of Ruwenzori. On our return journey through the Congo forests we halted at the edge of a picturesque gorge, a small river. Though but a small stream, it had in course of time widened for itself a profound gorge that would be large enough for a Hudson and deep enough for a Colorado. Gazing across this gorge one evening; we saw an immense herd of elephants coming toward us, seeming in the distance very black in color against the pale straw-yellow of the dry, short grass of the plains, but with white gleaming tusks, each elephant looking extraordinarily like the Eastern carvings of black ebony elephants with ivory tusks that are to be seen in every Chinese and Japanese collection. When they reached the precipitous descent to the gorge, I thought to see them turn back, but with great ease they slid and scrambled down the steep sides, rushing with shrill trumpetings to the reed beds which marked the invisible watercourse.

We shot two males out of this great herd, having permission to do so from the Congo Free State authorities. When the first rifle shots rang out, it was a touching sight to see the baby elephants run to their mothers (it was one of those large mixed herds that one so often sees with females and young accompanied by young full-grown males), and the mother separate her front legs as widely as possible to receive the little one under the protection of her body, ceasing her fierce trumpetings every few minutes to caress the frightened little one with her trunk. After the shots which laid low these two young males, the frightened animals in their panic tore up and down the gorge through the dense vegetation, not, however, attempting to charge us, though at one time it seemed as though they would run amuck through the camp. These breeding males appear to be quite young for elephants, say twenty to thirty years old), with relatively small (fifty-pound) tusks.

So long as the British government can determinedly enforce the game regulations by a small annual expenditure, and protect female and immature male elephants from being killed by natives or Europeans, there will not be much danger of the African elephant becoming extinct in a territory so large as British East Africa, where Nature has reserved vast marshes and leagues of forest for shelter of this beast. Provided the most religious care—such care is effectual in India—was taken of the females and young, there is no reason why a certain number of male elephants should not be killed yearly by designated agents of the government, and their ivory be sold to merchants as part of the Protectorate revenues. I see no reason whatever now why the female African elephant should not be tamed and used as a transport animal. For this purpose it might eventually prove advisable to import trained Indian females, who might assist in teaching the young captured Africans. (See also page 242.)

If after many years of trial the African elephant is pronounced to be hopeless as a domestic animal (and it should

be remembered that most male African elephants in captivity have shown themselves to be hopelessly savage), then at least for its magnificent ivory the creature is worth preserving as an asset to the state. If the Indian elephant shows himself to be more docile than the African elephant, it must be remembered, on the other hand, that he is of very little value for his ivory.

THE MOST DREADED OF AFRICAN BEASTS

I am afraid that blustering creature, the rhinoceros, can be turned to no useful purpose in the future of Africa, but he is such a grotesque survival from the great mammalian epoch that he should be steadily preserved from extinction. The rhinoceros, however, is a handful, to use a colloquialism. All along the route of the Uganda Railway game is being carefully protected, with the agreeable result that antelopes, zebras, and ostriches graze close to the line, as fearless of man as if they were in an English park. Much the same condition may be observed in parts of the Protectorate off the beaten track, where British sportsmen have not had an opportunity to harry and destroy.

But in all these countries the rhinoceros is not tamed by this tolerance, but is apt to become a dangerous nuisance by charging at all and everything at a moment's notice when it is playful or out of temper. Thus among a people like the Masai it is much dreaded. The Masai do not eat, and therefore do not kill, game. They fear no wild beast but the rhinoceros, because all other creatures, if they are let alone, seem to experience, as a rule, no desire to attack human beings.

The rhinoceros, however, makes absolutely unprovoked charges and occasionally gores a man before he has time to get out of the way. Fortunately these huge beasts are very stupid and very blind. They probably can see little or nothing with any clearness that is ten yards away from them. They are guided entirely by their sense of smell, which, however, is extraordinarily keen.

The rhinoceros of which a picture is here given (page 229) is the ordinary pointed-lipped, black rhinoceros of Africa, which ranges, or used to range, from Cape Colony to Abyssinia and Nubia, and thence, perhaps, across Africa westward to Lake Chad and Eastern Nigeria. So far as I am aware, the rhinoceros has not been found to exist in Africa west of the Central Niger, if, indeed, it gets much farther west than Lake Chad.* This is curious, if true, because the other big beasts of the African fauna, though, like the rhinoceros, they mostly avoid the Congo and West African forests, stretch in their distribution right across Africa, from Abyssinia to Senegal. The two exceptions, however, to this rule seem to be the zebra and the rhinoceros. Not infrequently the East Africa rhinoceroses produce horns of extraordinary length. The record, I believe, is forty-seven inches for the front horn.

THAT PART OF AFRICA WHERE ROOSEVELT WILL HUNT IS PROBABLY THE MOST INTERESTING REGION GEOGRAPHICALLY IN THE WORLD

That portion of the British sphere in East Africa where Roosevelt will hunt contains, within an area of some 150,000 square miles, nearly all the wonders, most of the extremes, the most signal beauties, and some of the horrors of the Dark Continent. Portions of the surface are endowed with the healthiest climate to be found anywhere in tropical Africa, yet there are also some districts of extreme insalubrity.

It offers to the naturalist the most remarkable known forms among the African mammals, birds, fish, butterflies, and earth-worms, one of which is as large as a snake and is colored a brilliant verditer-blue. In this Protectorate there are forests of a tropical luxuriance only to be matched in parts of the Congo Free

*Rhinoceroses swarmed in the countries to the north of Lake Chad in the days of the Romans. This fact was reported by the exploring Roman expedition under Septimus Flaccus, sent south of Fezzan toward Lake Chad at about A. D. 10.

State and in the Kameruns. Probably in no part of Africa are there such vast woods of conifers. There are other districts as hideously desert and void of any form of vegetation as the worst part of the Sahara.

There is the largest continuous area of marsh to be met with in any part of Africa, and perhaps also the most considerable area of tableland and mountains rising continuously above 6,000 feet. Here is reached the highest point on the whole of the African continent; here is the largest lake in Africa, which gives birth to the main branch of the longest river in that continent. There may be seen here perhaps the biggest extinct volcano in the world—Elgon.

Though lying on either side of the Equator, it contains over a hundred square miles of perpetual snow and ice; it also contains a few spots in the relatively low-lying valley of the Nile, where the average daily heat is perhaps higher than in any other part of Africa.

Within the limits of this region are to be found specimens of nearly all the most marked types of African man—Congo pygmies and the low, ape-like types of the Elgon and Semliki forests, the handsome Bahima, who are negroids as much related to the ancient Egyptians as to the average negro, the gigantic Turkana, the wiry, stunted Andorobo, the Appollo-like Masai, the naked Nile tribes, and the scrupulously clothed people of Uganda.

These last again are enthusiastic, casuistic Christians, while other tribes of the Nile province are fanatical Muhammadans. The Bahima are, or were, ardent believers in witchcraft; the Basoga polytheists are burdened with a multiplicity of minor deities, while the Masai and kindred races have practically no religion at all.

Cannibalism lingers in the western corners of the Protectorate, while the natives of other parts are importing tinned apricots or are printing and publishing in their own language summaries of their past history. This is the country of the okapi, the whale-headed stork, the chimpanzee, and the five-horned giraffe, the rhinoceroses with the longest horns, and the elephants with the biggest tusks.

A GREAT BOOM IN EAST AFRICA

Great changes are taking place day by day in British East Africa, owing to the completion of the Uganda railway, which will prove to be, I think, one of the mightiest factors yet introduced into Central Africa for the transformation of a land of complete barbarism to one at any rate attaining to the civilization of settled India. I have had the privilege of seeing this country just in time—just before the advent of the railway changed the Rift Valley, the Nandi Plateau, the Masai countries, from the condition at which they were at the time of Joseph Thomson (1882) to one which day by day becomes increasingly different.

On grassy wastes, where no human being but a slinking Andorobo or a few Masai warriors met the eye; where grazed Grant's gazelle, with his magnificent horns, and the smaller but more gaily colored *Gazella thomsoni;* where hartebeests moved in thousands, zebras in hundreds, ostriches in dozens, and rhinoceroses in couples; where, in fact, everything lay under the condition of Britain some 200,000 years ago; not only do trains puff to and fro (the zebras and antelopes are still there, accepting the locomotives like a friend, since it drives away the lions and ensures the respect of the game laws), but alongside the railways are springing up uncounted hideous habitations of corrugated iron and towns of tents and straw huts.

The solitude of the Rift Valley has gone. Thousands of bearded Indians, hundreds of Europeans and Eurasians, negroes of every African type (from the handsome Somali to the ugly Mudigo), Arabs, and Persians trudge to and fro on foot, ride donkeys, mules, and horses, pack the carriages like herrings, set up booths, and diverge far and wide a hundred miles in each direction from the railway line, trafficking with shy and astonished natives, who had scarcely realized the existence of a world outside their own jungle, for the beef, mutton, fowls, eggs, and vegetable foodstuffs

Photo from Bishop Hartzell

TOWER FROM WHICH THE NATIVES WATCH FOR LIONS: BRITISH EAST AFRICA: NOTE THE "BAIT"

which are to assist in feeding this invasion.

Far away on Baringo natives are extending their irrigation schemes and planting twice as much as they planted before, knowing that there is a market where their spare food can be exchanged for rupees. Farther north still, in the Suk countries, Englishmen, Scotchmen, Goanese, Arabs, Swahilis, and Baluchis are pushing into deserts to buy donkeys, and are trading for ivory which the railway will carry to the coast at a rate less than the cheapest porter caravan.

THE RAILWAY PROTECTS THE GAME

The Nyando Valley, for years without human inhabitants other than the shiftless Andorobo, is filling up with Masai, Swahili, and Nandi immigrants; while for 20 miles at a stretch on the beautiful heights and happy valleys of Mau you are in the presence of an unintentioned European colony, some of which no doubt will melt away with the completion of the railway, but much of which must be the nucleus of the great white colony one may hope to see established on the only land really fitted for its development in equatorial Africa. The Kavirondo, alas! are wearing trousers and "sweaters;" the sacred ibises have left Kisumu, for its swamps are drained. Piers and wharves, hotels and residences in corrugated iron, are springing up at Port Florence, destined, no doubt, to be

a great emporium of trade on the Victoria Nyanza.

So far from leading to the extermination of the game, the railway has actually come to the fore as a means of game preservation. It is really amazing how all the wild animals, except perhaps the lion, have taken to the railway. The big and small game soon realized the fact that they were shot at less from the railway line, and finally not at all, while on the other hand the lions, and perhaps leopards, were perturbed by the noise of the train, and began to shun the line, for, as regards shooting, exceptions were naturally made in their favor. However strict have been the game regulations in force for the protection of game along the line, naturally no restriction has been placed on the shooting of lions, leopards, and hyenas. Whether or not these deductions are fanciful, the plain fact remains to be testified to by any one who now takes a journey on the Uganda Railway that from the window of his carriage he can see as the train crosses certain tracts positive zoological gardens let loose.

AMID THE SNOW PEAKS OF THE EQUATOR*

A Naturalist's Explorations Around Ruwenzori, with an Excursion to the Congo State, and an Account of the Terrible Scourge of Sleeping Sickness

By A. F. R. Wollaston

AFRICA is a land of surprises at every turn, so one is not in the least astonished to find lying alongside of the quay at Port Florence, the end of the Uganda Railway, a perfect little ocean steamship. The white paint and the glistening brass-work, the electric light, and the Indian cook made me think that this was a P. and O. liner eastward-bound rather than a little steamer on a remote lake which fifty years ago no white man had even seen. After the grime of the *Deutsch Ost Afrika* and the discomfort of the Uganda Railway, this was luxury indeed.

The voyage across the lake to Entebbe is not in any way interesting. For a short time the ship is out of sight of land, but generally the north shore is in sight, or some of the innumerable islands that lie along the coast. A few seagulls and cormorants, the only birds that I saw, made it hard to believe that this was not the sea.

RAVAGES OF SLEEPING SICKNESS

One of the most interesting things to be seen in Entebbe at that time was the laboratory of the Royal Commission on Sleeping Sickness, under the charge of Lieutenants Gray and Tulloch, R. A. M. C., where the disease was being studied with a view to discovering its nature and, if possible, some means of treatment. Close at hand was the native hospital, filled with miserable wretches in various stages of the disease. It is sad to have to record that, though a great

*Abstracted from "From Ruwenzori to the Congo," by A. F. R. Wollaston. John Murray, London, 1909.

deal has been done towards checking the spread of sleeping sickness, no means of successfully treating it after infection has taken place has yet been discovered; it is invariably fatal.

The destruction that has been caused in Central Africa by the terrible scourge of sleeping sickness is almost incalculable; enormous areas of the lake-shore and whole archipelagos, where there was a swarming population only a few years ago, have been rendered absolutely desolate by sleeping sickness. I visited a few islands and a strip of shore not far from Entebbe and walked through large grass-grown villages where scattered bones were the only signs of humanity to be seen. It has been computed that more than 200,000 people have died of the disease in Uganda alone during the last seven years, and this is probably well within the mark. Apart from the appalling waste of human life, it involves a very serious loss to the state, which cannot afford to lose a large and thriving population living along its main waterway. One of the effects was to be seen in the increasing difficulty of inducing porters and laborers to remain at Entebbe, where they are afraid of catching the disease.

There is also the not inconceivable possibility of its being turned into an anti-European weapon. An unscrupulous agitator could easily persuade a half-educated people that the white men were responsible for the disease, and that the obvious remedy was to turn them out of the country. Happily only four Europeans have been attacked by sleeping sickness in Uganda, though the number in the Congo Free State is probably a good deal greater. (See also page 273.)

As one travels westward from the Victoria Nyanza across Uganda the country becomes daily poorer and less populated. The rich elephant-grass country of the Kingdom of Uganda is left behind and the road traverses rocky highlands. The latter are more picturesque, there are more flowers, and occasionally one can see a distant view of hills and valleys; but one day's march is very like another, uphill and down dale yesterday and to-day and tomorrow.

After 15 days' marching the character of the country changed more rapidly; undulations became steep hills, and valleys and swamps became clear mountain streams. The delight of drinking and washing in pure water instead of in the boiled mud, to which one was beginning to get accustomed, is a thing of which it is difficult to speak calmly. At a beautiful torrent with steep wooded banks I came unexpectedly upon a family bathing-party of yellow baboons, of all sizes from that of a mastiff to a small terrier; they ran about on the rocks and barked in the most alarming manner, and I was not at all sorry that the river was between us.

IN SIGHT OF RUWENZORI

There must be very few places in the world where one can walk in a couple of days from hot plains grilling under the Equator to a land of Alpine frosts and snows, where sun-helmets and mosquito-nets give way to furs and blankets, and the campfire serves no longer to scare away the lions, but to warm the shivering traveler. I have seen snow-capped peaks in New Guinea within 100 miles of the Line, but dense forests and the cannibalistic propensities of the natives make their exploration impossible without an armed escort. But it can be done in Ruwenzori, and, it seemed to me, after the many weary miles left behind, one of the most enchanting walks of my life. The path wound slowly up a wide valley through woods and fields and large gardens of bananas, crossing here and there a small tributary stream.

It is common to speak of Ruwenzori as a mountain, but it is in reality a range of mountains, with at least five distinct groups of snow-peaks. It has been described as the highest mountain in Africa, at least 20,000 feet high, and with an extent of thirty miles of glaciers; its height, as determined by the Duke of the Abruzzi, is slightly less than 17,000 feet, so that both Kilimanjaro and Kenia are

higher than Ruwenzori, and ten miles would more than cover the extent of its glaciers.

The first European to see Ruwenzori was probably Sir Samuel Baker, who saw what he called the "Blue Mountains to the south" during his exploration of Lake Albert in 1864; but it was not until 1887, when Stanley came from the Congo on the Emin Relief Expedition, that the mountains were definitely recognized as a snow range, and for very nearly twenty years more they remained as little known and as mysterious as ever.

CLIMBS IN THE RUWENZORI

One of the most remarkable features of Ruwenzori is the abrupt change that is often seen from one kind of vegetation to another. Above the tropical forest, which extends to about 8,000 feet, is a more or less constant zone of bracken and giant heath-trees, and above this, with a first sprinkling of *Podocarpus* and other large trees, begins the zone of bamboos which are found growing up to 11,000 feet, though their denser growth occurs between 9,000 and 10,000 feet.

The bamboos were so thick that we could not force a way through them, and cutting was too slow a process, so the natives adopted the plan of bending the bamboos down and walking over the top of them, which rather unusual method of procedure we followed for some time.

After struggling for miles through the dense jungle of bamboo, where all sense of direction was quickly lost, it was a relief beyond measure to come out occasionally onto tolerably level ground, where one could at all events get a glimpse here and there through the fog and rain, even though it meant exchanging the slippery slopes for swamps and sloughs, where the easiest path was knee-deep in mud and water.

The end of our day's journey was a steep black precipice, 400 or 500 feet high, called Kichuchu. At the foot of the precipice, which in one place was slightly overhanging, we found a small space, a few yards only in extent, of comparatively dry ground. It quaked ominously, like thin ice, at a heavy tread, but one does not employ the ordinary standards of wet and dry in such places. There was not room enough to pitch a tent, so we unfurled our beds and laid them close to the foot of the cliff, and as far as might be from the constant cascade of water, which splashed into pools from the overhanging rock.

The most notable feature of the camp at Kichuchu was the nocturnal chorus of the Ruwenzori ghosts. It was always said by the natives that there were devils high up in the mountains, and any one of a superstitious turn of mind who has slept or has tried to sleep at Kichuchu could well believe it. So soon as it became dark, first one and then another shrill cry broke the stillness; then the burden was taken up by one high up on the cliff overhead, then by others on the other side, until the whole valley was ringing with screams. Various theories were advanced to account for it; frogs, owls, and devils were among the suggestions, but the natives declared that the noises were made by hyraxes, and we discovered afterwards that they were right. It is possible that each actual cry was not very loud, but the steep hillsides and the bare wall of the cliff acted as sounding-boards, which intensified the noise to an incredible extent. It was one of the most mournful and blood-curdling sounds I have ever heard, and it caused an uncomfortable thrill, even after we had been assured that it had not a supernatural origin.

The upper Mubuku Valley—that is to say, from Kichuchu (9,833 feet) to the foot of the Mubuku glacier (13,682 feet)—is built in a series of gigantic steps of from 500 to 1,000 feet in height, between which lie tolerably level terraces of from one to two miles in length. The first of these steps is made by the cliff at the foot of which lies the rock-shelter of Kichuchu. The path leads up a sloping rift in the rock face, in some places so well sheltered that the dust of ages lies thick upon the ground, but more generally it is nothing but the bed of a stream, and is exposed to the drippings from the rocks above. A climb of about an hour brings one to the first great ter-

Photo from "From Ruwenzori to the Congo," by A. F. R. Wollaston

MOSSES ON THE HEATH TREES OF RUWENZORI: ELEVATION, 10,000 FEET

(SEE PAGE 261)

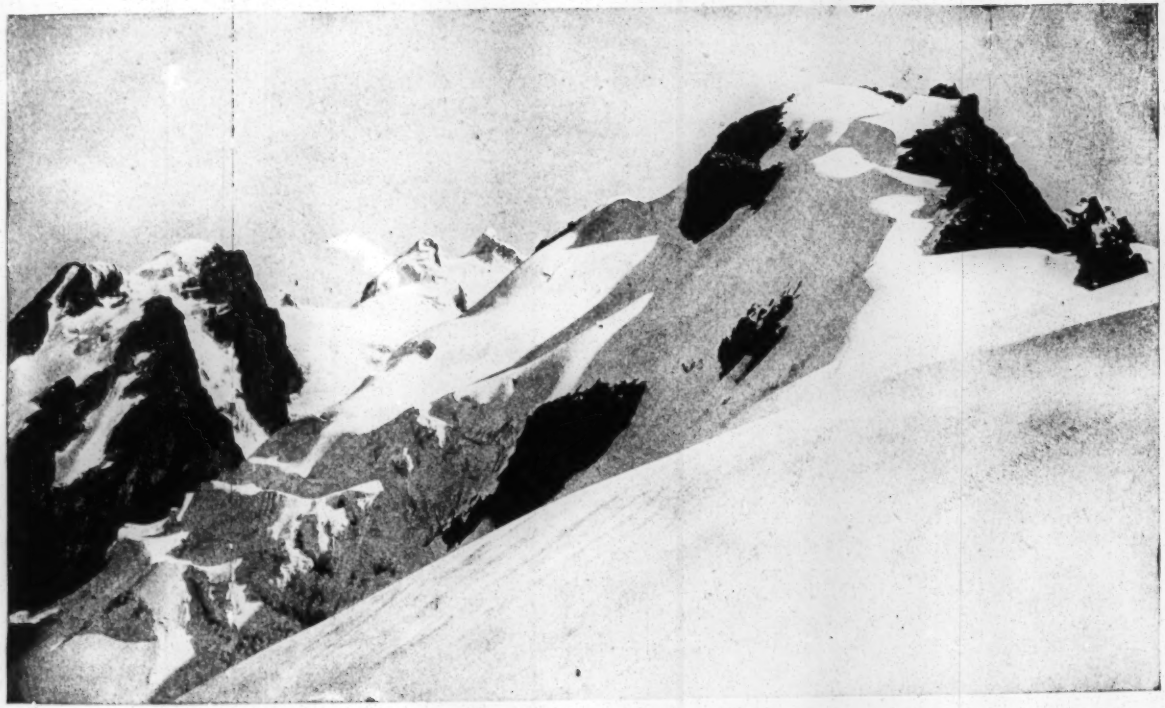


Photo by Vittoria Sella from "From the Ruwenzori to the Congo," by A. F. R. Wollaston

THE HIGHEST PEAKS OF RUWENZORI, FROM THE SLOPES OF KING EDWARD PEAK (KIYANJA)

These peaks lie almost across the equator. Their mantle of perpetual snow presents a striking contrast to the tropical character of the surrounding country (see page 263)

race. There is a small area of swamp, but this terrace is chiefly remarkable for the wonderful luxuriance of the heath-trees, which here attain their greatest growth.

STRANGE LOOKING HEATH-TREES

A heath-tree is a thing entirely unlike any of the trees of England; the reader must imagine a stem of the common "ling" magnified to a height of 60 or 70 or even 80 feet, but bearing leaves and flowers hardly larger than those of the "ling" as it grows in England. Huge cushions of many-colored mosses, often a foot or more deep, encircle the trunks and larger branches, while the finer twigs are festooned with long beards of gray lichen, which give to the trees an unspeakably dreary and funereal aspect. This first terrace was perhaps the most difficult and tiring part of the whole ascent, for not only did the heath-trees grow very close together, but the ground beneath them was strewn with the dead and decaying trunks of fallen trees, some of them hard as bog oak, and others ready to crumble at a touch, but all of them covered with a dense carpet of thick moss, which necessitated a careful probing before any step forward could be taken. The way in which our porters, encumbered as they were with awkward loads, hopped nimbly from one trunk to another made one feel thoroughly ashamed.

As we ascended the steep slope the heath-trees became rather less dense, and in the intervals between them appeared a few helichrysums, tall senecios with clusters of yellow flowers, and a beautiful little blue violet (*Viola abyssinica*) very similar to the English dog-violet. At the top of this slope, about 11,800 feet, the climber enters upon a new world, or, to speak more truly, it is a tract that seems to be a relic of a long-past age.

One would not be in the least surprised to see pterodactyls flying screaming overhead (they must have been noisy creatures, I think) or iguanodons floundering through the morasses and browsing on the tree-tops. But there are no living creatures to be seen or heard; it is a place of awful silence and solitude. It is an almost level meadow or "swampy garden," as Sir H. H. Johnston called it, a mile or more long and several hundred yards wide.

GIANT LOBELIAS AND GROUNDSELS

Out of the moss, which everywhere forms a dense and soaking carpet, grow thick clumps of helichrysum with white and pink flowers, and standing up like attenuated tombstones are the tall spikes of giant lobelias (*Lobelia deckenii*). Groundsels (*Senecio adnivalis*) grow here into trees 20 feet high, Saint Johns wort (*Hypericum*) is a tree even higher, and brambles (*Rubus doggetti*) bear flowers two inches across and fruit as big as walnuts. Through the middle of the meadow the Mubuku meanders over a gravelly bed, as perfect a trout stream in appearance as one could wish to see. On either side are steep rocks and slopes covered with heath-trees looming like ghosts upward into the everlasting fog. At its upper end the meadow is bounded by an almost precipitous wall, over which the Mubuku stream falls in a splendid cascade.

Our next camp was pitched under the shelter of another overhanging cliff, and surrounded by huge blocks that had fallen therefrom. Our porters found refuge in all sorts of queer holes and crannies among the rocks. There was not space enough to pitch a tent, and we were a miserable little party as we sat huddled round a fire of sodden heath logs, which produced only an acrid and blinding smoke.

The cliff overhead is the haunt by day of large fruit-eating bats (*Roussettus lanosus*), which measure about two feet across the wings. At sunset they come flapping out, and for a second or two afford a chance of a difficult shot before they disappear through the heath-trees towards the valley below. To judge from the number of their tracks, which we found about the camp and far up the mountain sides almost to the snow level,

leopards and another smaller cat were fairly common, but we never chanced to see one. Our first night at Bujongolo I shall never forget by reason of an earthquake, the most severe I have ever felt, which awoke me from a troubled sleep. Every moment—it seemed to last for minutes instead of, probably, for a few seconds only—I expected to see the cliff, which made our roof, come crashing down to put an untimely end to our travels.

A short distance above Bujongolo, where it flows through a deep and narnow gorge, the Mubuku takes a sharp bend to the right (north), and at the same time the valley widens out into the third and last of the great swampy terraces, at an altitude of rather less than 13,000 feet. As one comes out from the last of the heath forest at the bend of the valley, there is suddenly unfolded a glorious view of mountains and snowfields. In the middle of the view towers up the beautiful peak Kiyanja (King Edward Peak) with two glaciers on its flanks to the right at the head of the valley, the great Mubuku glacier thrusts its long nose almost down to the valley floor, and on either side are jagged peaks with steep black precipices and gentler slopes of snow.

During all the eight or nine days that our two expeditions to Bujongolo together counted, I do not suppose that the mountains were visible for half as many hours; but the place was so grim and solemn, and so almost unearthly in its setting, that the scene is far more firmly impressed upon my memory than many that I have seen a hundred times more often. The lower slopes were covered with lobelias and senecios and helichrysums and the inevitable moss.

NEW BIRD DISCOVERED

Here was found one of the most striking, and not the least interesting, of the many new birds that were discovered by the expedition. This was a sunbird (*Nectarinia dartmouthi*) of a dark metallic green color, shot with a wonderful iridescent purple. Two feathers of its tail were prolonged several inches beyond the others, and upon its breast, almost hidden by the wings, were two tufts of short crimson plumes. To see one of these little birds perched upon a tall blue spike of lobelia, fluttering his wings and flirting his long tail, was one of the prettiest sights imaginable. Sunbirds and large Swifts, which live in the steep rocks like the Alpine Swifts in Europe, were almost the only living things to be seen.

The first expedition that we made from Bujongolo was to the head of the Mubuku glacier. A mile or more of ploughing through swamp took us to the end of the level terrace, beyond which we mounted at first over an old moraine covered with a forest of senecios, and then over smooth, glacier-worn rocks coated with moss and oozing with water, and up through a curious tunnel, formed by a huge block jammed across a gully, to the foot of the glacier (13,682 feet). We had often noticed far down in the valley below that there was no great difference in the volume of the Mubuku from morning to evening, as there is in the glacier-fed streams of Europe, and the reason was apparent when we came to the Mubuku glacier. Both early and late there was never more than the merest trickle of water flowing from this glacier. The reason, which has been pointed out by Mr. Freshfield, is that in Africa, as in other tropical and subtropical regions, notably the Sikkim Himalayas, the glaciers lose most of their substance by evaporation.

It was pleasant to think that a part of that tiny stream would perhaps find its way into the great river, which goes swirling past the temple of Abu Simbel and carries fatness to the fields of Egypt. We scrambled up a few hundred feet of loose and rotten rocks, more dangerous than difficult, and then took to the glacier near the top of the ice-fall, where it was necessary to cut a few steps among the seracs. From the top of the ice-fall we made a wide detour across the glacier to avoid the risk of an avalanche from a little hanging glacier on our right—the

remains of recent avalanches were scattered all about us—and thence an hour's walk up an easy snow-slope took us to the top of the ridge and the rock.

THE ASCENT OF KING EDWARD PEAK

On the following day, soon after sunrise, we set out for Kiyanja (King Edward Peak). Instead of following the Mubuku valley up the wide terrace to the glacier, we turned off towards the west, up a small tributary stream, and soon found ourselves in difficulties. Slopes which from a little distance looked smooth and easy enough were found on closer acquaintance to be cut up with gullies and water-courses and clothed in the most disheartening vegetation that ever resisted the footsteps of a climber.

We could not complain much about sinking at every step almost to the knees in moss and black slime; but through the moss grew, as high as one's head, a tangle of "everlasting" bushes, as stiff and wiry as broom, through which we had to force our way as best we could. The tall, upright spikes of the lobelias seemed to offer a sure support, but they generally crumbled away at a touch and sent one sliding down the slope again, while the stems of the senecios were too slippery with moss and moisture to be of any use in hauling oneself up the hillside. It would have been hard work enough anywhere to make much headway over ground of that sort, but at an altitude of about 14,000 feet, where we had not been long enough to have become acclimatized and where the slightest exertion was a labor, it only needed a word from one to the other of us and we had beaten a retreat. Luckily the word was not spoken, and, after we had lightened our burdens by leaving behind us cameras and all but the most necessary food, we struggled on with less difficulty.

At a height of about 14,500 feet all our difficulties were practically at an end; we had passed beyond the limit of the lobelias and the bushy "everlasting," though another species (*Helichrysum stuhlmanni*) was found up to 15,000 feet, and the senecios were getting fewer, until at 14,800 feet they ceased altogether. Rocks, partly moraine and partly blocks that had fallen from a high cliff on our left, began to replace the moss and mud—a most welcome change. Very fortunately we had had a clear view of the mountain earlier in the day, and had mapped out the course that we proposed to take, noting certain prominent landmarks. Had we not done so, there would have been nothing for us to do but to stay where we were or retrace our steps, as the clouds were low down on the mountains when we came to the foot of the rocks. However, we groped our way blindly forward, and luckily recognized a big wall of granite rock, which had shown up conspicuously pink from below.

Here, in order to make certain, if possible, of finding our way back through the fog, we filled our pockets with "everlasting" flowers, which we scattered, like Hansel and Gretel, every few yards as we went along. Often as I had maligned the "everlastings" before, I blessed them that day; they undoubtedly saved us from a night out on the mountainside, if not from worse things. After climbing up a few hundred feet of steep but easy rocks, we came on to a small glacier, bare and dry in its lower part, but covered with an increasing depth of snow as we went higher. A black mass before us loomed huge through the fog, and seven hours after leaving camp we stood on the peak, which seemed from below to be the summit of Kiyanja (King Edward Peak). We built a small cairn, and, to keep ourselves warm, hurled huge boulders down the steep eastern face of the mountain into the Mubuku valley. It is an attractive amusement, but not one to be recommended in regions more populous than Ruwenzori.

We waited as long as it was safe to do, if we were to get back to camp that night, and were just preparing to descend when a warm slant of sunshine pierced the fog, the clouds boiled up from below, and we looked right down the Mubuku Valley and saw the river winding away over the yellow plain of Ruisamba and the blue hills beyond. It was one of the rare glimpses that one gets from the Alps of

the Lombard Plain, but it lasted only for a moment before it was blotted out again. Then there came a clearing on the other side towards the north and west, and we saw that we had missed the real top of our mountain, King Edward Peak (15,988 feet), which rose perhaps 150 feet higher than the point that we had reached and was connected with ours by an arete of snow. It was disappointing to have missed it, but it was too late then to go further. Towards the northwest was a big snow-peak about 400 feet higher than ours, forming a big western buttress of the range; and further away, apparently three or four miles to the northwest, appeared two beautiful sharp-pointed snow-peaks, which seemed to be about 1,000 feet higher than our peak and must be unquestionably the highest peaks in the range.

Our estimate of their heights proved to be approximately correct. The Duke of Abruzzi found their heights to be 16,815 feet (Margherita Peak) and 16,749 feet (Queen Alexandra Peak). The peaks were seen rising out of a dense bank of clouds which lay between us and them, so that it was impossible to tell in what way they were connected with the other peaks of the range. All too soon the clouds enveloped us again more densely than before, and it was fully time to start back towards Bujongolo. Thanks to our trail of "everlasting" flowers, we lost no time in the descent, and we staggered into camp just as darkness set in, after one of the most tiring days I have ever experienced.

The attempts that we made to penetrate into the heart of the range were hopelessly handicapped by lack of means and equipment. We were not in any sense a climbing party, and our excursions were made during the course of other occupations.

Now that the peaks and glaciers of Ruwenzori have been explored and named (some of them for the third and fourth time) by the Duke of Abruzzi and others, it is unlikely that the range will often be visited. Tourists who go to Lake Victoria will think twice before they venture on a three weeks' march across country; and, if that be not enough, the atrocious climate and the chance of seeing nothing when you get there because of the fog and rain will keep away all but the most enthusiastic and determined mountaineers.

COLLECTING SPECIMENS

Our party camped for four months on the east slope of Ruwenzori, making natural history collections for the British Museum. The natives soon discovered that they could make an appreciable addition to their incomes by hunting and bringing in beasts of various sorts. Hyraxes, gigantic rats, bats, mice, worms, beetles, chameleons, and snakes came pouring in when once it was found that there were people mad enough to pay for such follies. The care with which they secured the captive beasts and the air of mystery and importance with which they produced them were always a source of amusement.

If it could by any means be avoided, they would never hold a beast in their hands, but always bind a string of banana fiber round its neck and attach that to a stick, or else they wrapped the creature in elaborate parcels of banana leaves, which they opened with a great display of caution and pretense of fear. The moment of unpacking the parcel was always an exciting one, as you never could tell what might be produced; a mouse might make a sudden dash for liberty, or a swarm of beetles or crabs come scurrying out, or a few chameleons would come strolling out, looking fearfully bored, or half a dozen bats would flap out into the sunshine.

THE CHIMPANZEES

There were a great many chimpanzees in the forest; their "nests," light platforms of sticks built in the forks of high trees, were frequently found, and often at night one would hear their cries near the camp; it was a most melancholy sound, like the wailing of children in distress. They are shy animals and are not very often seen, but on one occasion we had an excellent view of a small family party, a baby with its two pa-

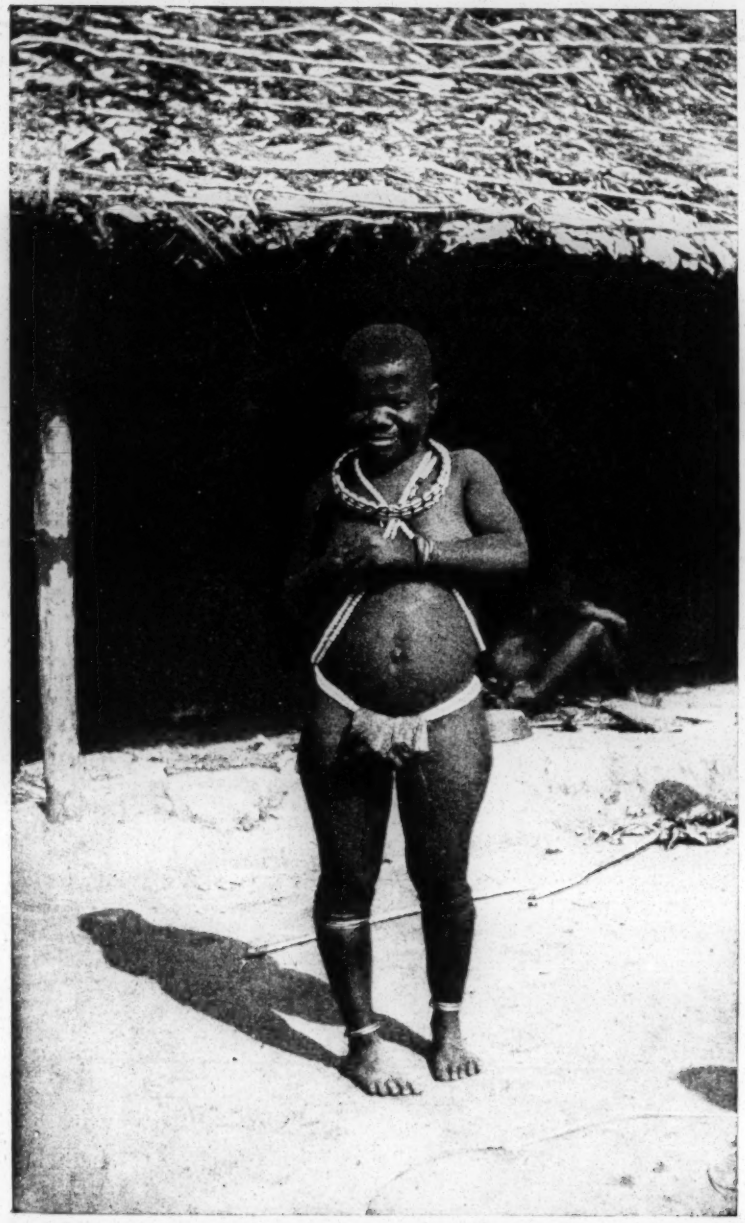


Photo from "From Ruwenzori to the Congo," by A. F. R. Wollaston

A PYGMY LADY OF THE GREAT CONGO FOREST (SEE PAGE 268)

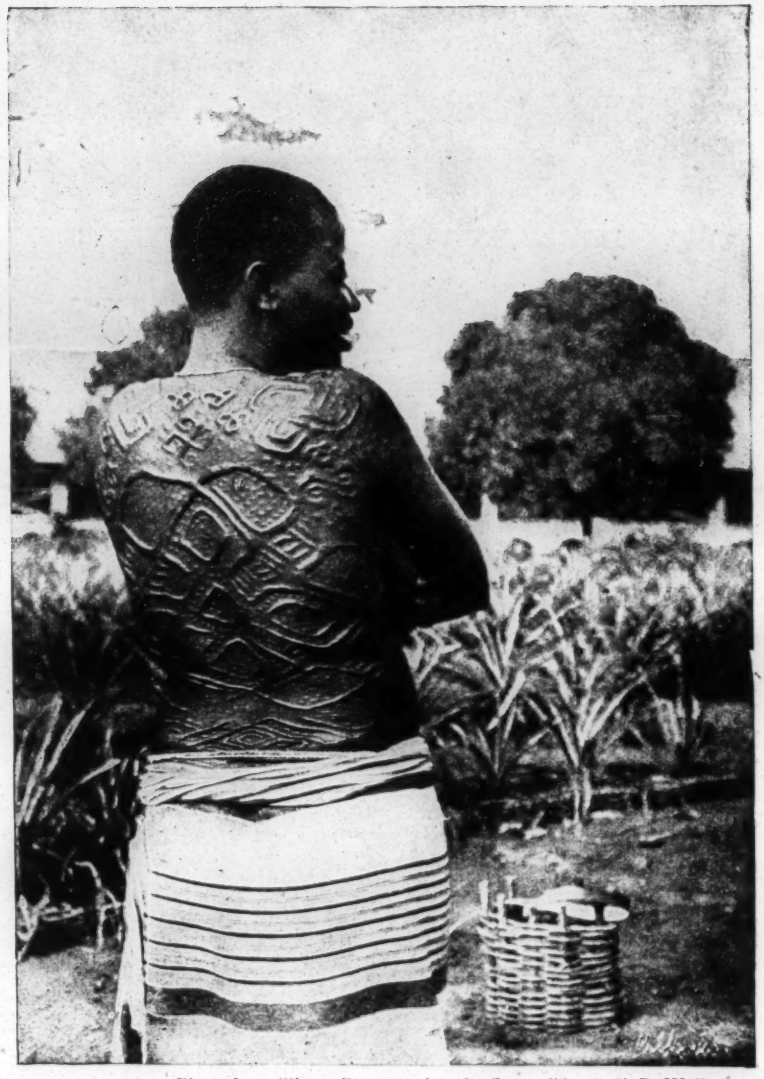


Photo from "From Ruwenzori to the Congo," by A. F. R. Wollaston

A TATTOOED BEAUTY FROM THE LOWER CONGO

rents, feeding on the fruit of a tree below the camp. With the help of field-glasses it was easy to see the almost painfully human gestures of the old ones, as they helped the little one to move from branch to branch and fed it with berries. Although they are most commonly found in the tropical forests at a lower level, chimpanzees wander about a great deal and go far up the mountains in search of food; we found traces of them at a height of nearly 10,000 feet in Ruwenzori, where they had been feeding on the berries of a podocarpus.

GAMBOLING HIPPOS

A few miles from Albert Edward Nyanza we came to a circular lake, once a crater, about half a mile wide. The water is slightly salt and is greatly appreciated by the hippos, who come here in large parties to bathe. The lake is shallow for a few yards only, and then deepens rapidly, so the hippos, who do not like deep water, never go very far from the shore.

On a still day it is an amusing pastime to sit by the lake and watch the great brutes enjoying themselves. For a moment nothing is to be seen, then suddenly a score or more of huge heads burst through the surface with loud snorts and squirting jets of water through their nostrils. They stare round with their ugly little piglike eyes, yawn prodigiously, showing a fearful array of tusks and a cavernous throat, and sink with a satisfied gurgle out of sight, to repeat the performance a minute or two afterwards. Sometimes one stands almost upright in the water, then he rolls over with a sounding splash, showing a broad expanse of back like a huge porpoise; or a too venturesome young bachelor approaches a select circle of veterans, who resent his intrusion and drive him away with roars and grunts. There is something irresistibly suggestive of humanity about their ungainly gambols; only bathing-machines are wanted to complete the picture.

POWERFUL BIRDS

There are two birds which will live in my memory long after I have forgotten everything else about this region. One is the Bateleur eagle, which may be called the first-class cruiser among birds; for power and swiftness of flight there is none that can compare with it. With its long wings and curious stunted tail, it looks more like a huge bat than a bird, as it sails high overhead, never flapping its wings, but giving just an occasional tilt from one side to the other. One moment it is here, and the next it is a speck almost out of sight across the plain.

The other is a very remarkable species of Nightjar, in which some of the feathers of the wing, particularly the second primary, are enormously lengthened; the longest that was measured had a length of 21 inches. These birds sleep during the day in warm places on the hillsides until sunset, when they fly down to the low ground about the lake. The long feathers, trailing out like streamers behind them, give the birds a most unnatural appearance, as if they had four wings; but though one would expect the long feathers to be rather an encumbrance than otherwise when the bird is chasing insects, it can turn and twist in flight as quickly as a peewit.

ACROSS THE BORDER IN THE CONGO STATE

After coming from Uganda, where the natives are not allowed to carry weapons, it was strange to us to see all the people going about armed across the border in the Congo State. The majority of them carried spears, while a good many carried a short bamboo bow and a quiver full of arrows made of reeds pointed with curiously fashioned tips of metal. Our stay was enlivened (if it may be said without disrespect to the departed) by the death of Kilongozi, the big chief of the district. Many of his vassals had assembled several days before in anticipation of his death, and as soon as the event was announced it was greeted with a chorus of shrieks and wails, which resounded throughout the country and continued with brief intervals for several days.

The chief was buried beneath the floor of his house, about which his subjects,

to the number of more than a thousand, congregated in a dense throng. During the first day they were fairly quiet, and contented themselves with dancing slowly to the tune of the inevitable drums and with firing off guns at intervals. On the following days, inspired by the "pombe," which they drank in immense quantities, they were rather more boisterous in their grief. The women, and some of the men, attired themselves in a sort of very short ballet-dancer's skirt made of banana leaves, in which they performed some very quaint and intricate dances. Sometimes the women would stand aside, and the crowd of men, dividing into two opposite parties, would perform a war-dance or mimic battle, shrieking and howling like lunatics.

Fortunately etiquette forbids the wearing of spears and knives at a funeral, and harmless reeds are carried instead, or there might have been accidents. There were hundreds of drums and trumpets of ivory or antelopes' horns and whistles of various sorts in the crowd, and the deafening din which they produced was still in progress when we left Beni.

There was formerly a fairly good road through the Congo forest north from the foot of Mount Ruwenzori, but now, owing to the attitude of the "revoltes" natives, it has gone out of use, and owing to the action of elephants and buffaloes, which swarm in this part of the forest, it has gone sadly out of repair. The beasts were there in such numbers that in some places the air was full of the strong and bitter odor, which one associates with the elephants' house at the zoo. The path was pounded and churned into a sort of red cream by the feet of the monsters, and every tree-stump was polished bright and smooth, where they had scratched their huge sides, or, nearer the ground, there the buffaloes had rubbed their horns. Although there are so many—you see the bushes swaying and hear them crashing away perhaps within a few yards of you, and hear them trumpeting at night—the beasts themselves are very seldom seen.

It was in this part of the forest that the okapi was first discovered a few years ago, and it is probable that they are more plentiful, or, to be more accurate, less scarce, in the Semliki and Ituri forests than elsewhere. Any one who is anxious to procure a specimen of this strange creature must obtain first a special permission from the Congo government, and, secondly, the friendship of a tribe of Pygmies; the latter can best be managed by a liberal offering of salt, their most valued necessary. With reasonable luck and the exercise of patience, he might be expected to get an okapi within a few months' time.

THE PYGMIES

The Pygmies live almost exclusively by hunting; they grow no crops and they do not manufacture their bows and spears; these they obtain in exchange for game from the other inhabitants of the forest, who also supply them with bananas and other produce. They have no settled dwellings, but each tribe or family seems to have a definite hunting district, whose bounds they never transgress; they sleep wherever they happen to be, and we were constantly coming across their tracks and their little shelters, the flimsiest structures of sticks thatched with leaves.

The first Pygmy that I met greeted me with a shout of "Bonzoo, Bwana (sir)"; he had been for a time in a Congo post, and "Bonzoo" was his version of "Bon jour." He was a cheerful little person, about four feet high, and he shook hands effusively; his was one of the most perfectly shaped hands I have seen, but cold and clammy, as the hands of most black men are. Now that some of his cousins—brothers, perhaps—have toured about England and have exhibited in music-halls, the appearance of Pygmies is doubtless familiar to every one, and it need hardly be remarked that even in the Congo they have not all yet learned to speak French.*

*For a further description of the Pygmies and the great Congo Forest, see "A Journey through the Congo State," by Major Powell-Cotton, in March, 1908, NATIONAL GEOGRAPHIC MAGAZINE.

Photos from Bishop Hartzell

IVORY AND RUBBER AT MATADI, ON THE CONGO RIVER

NATIVES WITH IVORY: CONGO REGION

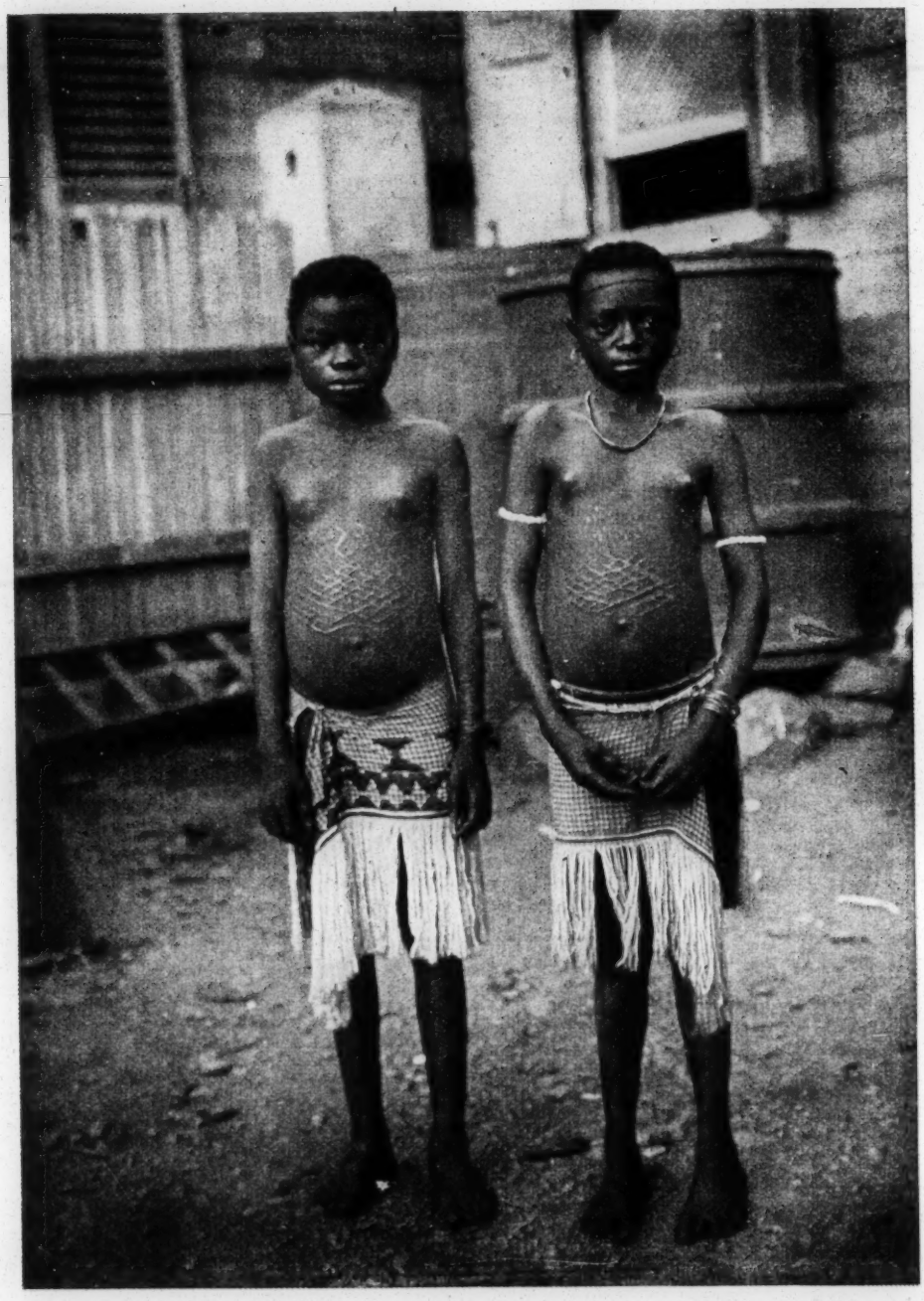


Photo from Bishop Hartzell

SPECIMEN OF TATTOOING YOUNG NATIVE GIRLS: NEAR THE COAST OF BRITISH EAST AFRICA

The path is nearly always as bad as can be—often it is nothing but a succession of fallen trees and muddy elephant-baths; but there is a subtle fascination about walking through the forest, which increases as the days go by. The best way to feel the forest is to walk far ahead or, as I lazily preferred to do, miles behind the caravan, far beyond the sound of a disturbing gunshot or of the unceasing chatter of the porters. Sometimes there is a sound of crashing through the trees, where a herd of elephants have been disturbed in their siesta; sometimes a troop of monkeys dash twittering through the tree-tops, or huge topheavy-looking hornbills fly overhead screaming uncouth discords; but more often the silence of the forest is unbroken and complete, and you may walk for miles at a time and not hear a sound or see a sign of living creature. It may be only a result of the half gloom and one's sense of smallness amid the vast surroundings, or it may be an instinct inherited from prehistoric forest-dwelling ancestors; but, whatever the cause may be, you find yourself walking with unwonted care and ever on the alert for an unknown something.

It was only in the infrequent clearings, where we camped, that we realized how immense, compared with our insignificant tents, the trees of the forest are; as a rule, their height is greater in proportion to their girth than is the case with an ash or an elm. The forest is seldom level; it is always gently rising or falling, as much one way as another, and it was not until we found one day that the streams were no longer flowing to our right into the Semliki that we realized that we had crossed the watershed into the basin of the Congo.

Wandering on, day after day, through the forest, one began to wonder, "Shall we come out of it all some day, as one does from a tunnel?" and our coming out of it was almost as sudden as that. Without any warning, except that for a mile or so the trees had become perhaps a little smaller, the forest ended abruptly, and we found ourselves on the edge of an open, hilly, grass country that stretched as far as we could see to east and north.

LIONS ARE NOT USUALLY DANGEROUS

The few inhabitants of the district about Albert Edward Nyanza, on the Uganda side, seem to be almost wholly a water-side people, who live entirely by fishing. At the southeast corner of the lake are some curious colonies of lake-dwellers, whose huts are built several yards from the shore, with the object, presumably, of escaping the attack of the lions, which are always in attendance on large herds of game. At a small village at the extreme south end of the lake our camp was surrounded by a high reed-fence for the same purpose, and only a few days before we arrived there a man, who incautiously went outside the fence after dark, had been carried off and eaten.

They are chiefly nocturnal in their habits, and the country where they live is usually so densely clothed with grass or scrub that, unless you go out with the express purpose of hunting them, the chances are very much against catching a glimpse of a lion at all. In cultivated districts, so far from being a source of public danger, lions may be looked upon as the friend of the agriculturist. Like the tigers in some parts of India, their favorite food is the wild pigs and small antelopes which play such havoc among the crops, and their complete extermination would not prove to be by any means an unmixed blessing. It is only very rarely that men are attacked by them. Of course, if a man is foolish enough to walk about after dark, he offers a tempting meal which no hungry lion would be likely to refuse; but instances of lions, like the famous man-eaters of Tsavo, acquiring a preference for human flesh and breaking into huts and tents to seize men are quite exceptional.

VIRULENT FEVER CAUSED BY TICKS

We had intended to stop for a few days to visit the villages of the lake-dwellers, but in that we had reckoned without the spirillum. There is a species

Photo from Russell Hastings Millward

PRIMITIVE METHOD OF STRIKING FIRE IN MANY PARTS OF AFRICA (SEE PAGE 273)

of tick (*Ornithodoros moubata*), a frequenter of native houses and old camping places, which carries in its blood a micro-organism called *Spirochæta duttoni*. When it is introduced into the blood of a man by the bite of one of these ticks, the *spirochæta* is the cause of a particularly unpleasant relapsing fever. An ordinary attack lasts for two or three days, and recurs again after an interval of a week or more; in severe cases the attacks may be continued for months. Hitherto no satisfactory remedy has been discovered for the fever, and all that can be done is to take steps to avoid being bitten by the tick.

There are some districts in which the fever is so prevalent that it is difficult to induce porters to travel through them. It is useless to tell them that if they sleep in the old shelters they will get fever; they smile indulgently but incredulously at the crazy European, and unless they are turned out of the old shelters and compelled to make new ones, tick-bites and spirillum fever are the speedy results. The Uganda government has ordered the destruction of the camp shelters along the roads in the worst infected districts, and it is hoped that in this way the disease will be kept with bounds.

In spite of all our precautions, my friend and I fell victims to it.

PRIMITIVE METHODS OF CARRYING FIRE

The people of the Kivu region still retain the primitive method of obtaining fire from wood. The apparatus is simple enough and consists of a slender stick of hard wood, a flat piece of soft and partly charred wood (often a segment of a bamboo), and a scrap of inflammable material, such as rag or bark. The slender stick is placed upright upon the soft wood and is rotated very rapidly between the palms of the hands; the tinder, placed close to the point of contact, smoulders in a few seconds and can easily be blown into a flame. Many of them were glad enough to sell their fire-machines for a small box of Swedish matches.

In districts where this method of obtaining fire is not employed the natives have a convenient habit of carrying fire secreted somewhere about their persons. If he is a person who wears a rag of some sort, he probably has a fragment of smouldering wool or fiber tied up in a corner of his garment. If he is very scantily attired, his fire will be carefully folded up in a piece of banana leaf and attached to his spear or stick, as the case may be.

In the old days of African travel no doubt any kind of cloth and beads of any size or color were welcomed everywhere; but the old order has changed. It is true that our beads went like hot cakes round the shores of Lake Albert Edward, but when we came to the volcanoes and southward, the natives turned up their noses (or made an equivalent grimace) at our beautiful blue-glass beads and would have nothing of them. They said they must have red beads—small red beads—or none at all. In other places they wanted small blue beads or large red beads, and so on. It was the same with the cloth; one district had a preference for blue cloth, another for white, and another for spotted cloth. There are as many different fashions in beads and cloth in Central Africa as there are in ladies' hats and gowns in more civilized countries.

THOUSANDS DESTROYED BY SLEEPING-SICKNESS IN CONGO STATE

The country around the west coast of Lake Tanganyika, in the Congo Free State, has been almost entirely depopulated by sleeping-sickness, which was unknown on the shores of the lake until the year 1903. Whole villages have been wiped out and huge tracts of fertile land along the lake which were formerly cultivated have become impenetrable jungle. One day we passed the deserted relics of a mission station which had been the center of a large settlement; the people had all died or had migrated to a less cursed country, and there were no pupils left to be taught by the Fathers, who had, therefore, gone elsewhere. Almost daily, as we walked westward from Tanganyika, we passed corpses by the roadside, dead of the terrible sickness; and it was no uncommon thing for the

caravan to make a wide detour to avoid some unspeakable horror.

The people are brutally inhuman to the victims of the disease. So soon as a man becomes incapable of supporting himself he is turned out of the village to subsist for a short time on loathsome garbage and soon to starve like a dog. So long as I live I shall be haunted by the recollection of one of these miserable creatures who came crawling about our camp not far from Tanganyika. The porters—"our black brothers," as some people would call them—were stuffing themselves on the fat of the land at the time, and though he was one of their own tribe, they jeered at his infirmities—he could not walk, but dragged himself along the ground with his hands—and refused to give him a scrap of the food for which he begged. Heartrending spectacles of this sort can be seen on the outskirts of almost every village between the Congo and Tanganyika.

The Congo State is making strenuous efforts, by the establishment of lazarettos in which infected people are confined, to check the spread of the disease; but it is a task beset with innumerable difficulties, and the medical staff of the State is hopelessly inadequate in numbers. Thus, for the whole of the Russi-Kivu District, which is about as large as England without Wales, there are two doctors; for another district, which is roughly the size of Ireland, there is one doctor. So it frequently happens that an unfortunate official who falls ill in a remote station is twelve or fourteen days' journey from the nearest doctor, who arrives only in time to find him either recovered or in his grave.

CIVILIZATION IS RESPONSIBLE FOR SPREAD OF DISEASE

It is only fair to say that the doctors, who are mostly Italians, work most nobly and perform wonderful feats of traveling by day and night; but it is manifestly impossible for them to devote much time to the study of native diseases or to take very active steps towards preventing the spread of sleeping sickness. On our way down the Congo I visited three or four of the State lazarettos, which (with one exception) were well conducted; but with such a splendid highway as the river itself forms, it is excessively difficult to check the movements of infected but unrecognized individuals, who are a constant source of danger wherever they go.

It is a lamentable fact, but one which cannot be gainsaid, that civilization must be held responsible in no small degree for the spread of sleeping sickness during the last few years. In the old days, when every tribe and almost every village was self-sufficient and had no intercourse with its neighbors, except in the way of warfare, it might very well happen that the disease became localized in a few districts, where its virulence became diminished. Nowadays, with the rapid opening-up of the country, the constant passage of Europeans traveling from one district to another, and the suppression of native warfare, it is becoming increasingly easy for natives to move beyond the limits of their own countries, and by their means sleeping sickness is spread from one end of the country to another. The prevention of the disease is by far the most serious problem which confronts Europeans in Africa, and the outlook at the present time is at the best a gloomy one. (See also page 257.)

Sleeping sickness, properly so called, is the name applied to the terminal stages of trypanosoma infection, or trypanosomiasis.

Trypanosomes belong to the *Hæmoproteidæ*, a group of the *Hæmoprotozoa*, organisms which inhabit the blood of many vertebrates, fishes, birds, reptiles, and mammals. The disease has been known in Africa for more than a century, but its connection with the trypanosome was not recognized until 1902. In that year Dutton, in the Gambia Colony, found a trypanosoma, which he called *Trypanosoma gambiense*, in the blood of a native suffering from a fever of non-malarial character. In the same year Castellani, in Uganda, discovered trypanosomes in the blood and in the cerebro-spinal fluid of cases of sleeping sickness. He suggested that the parasite is

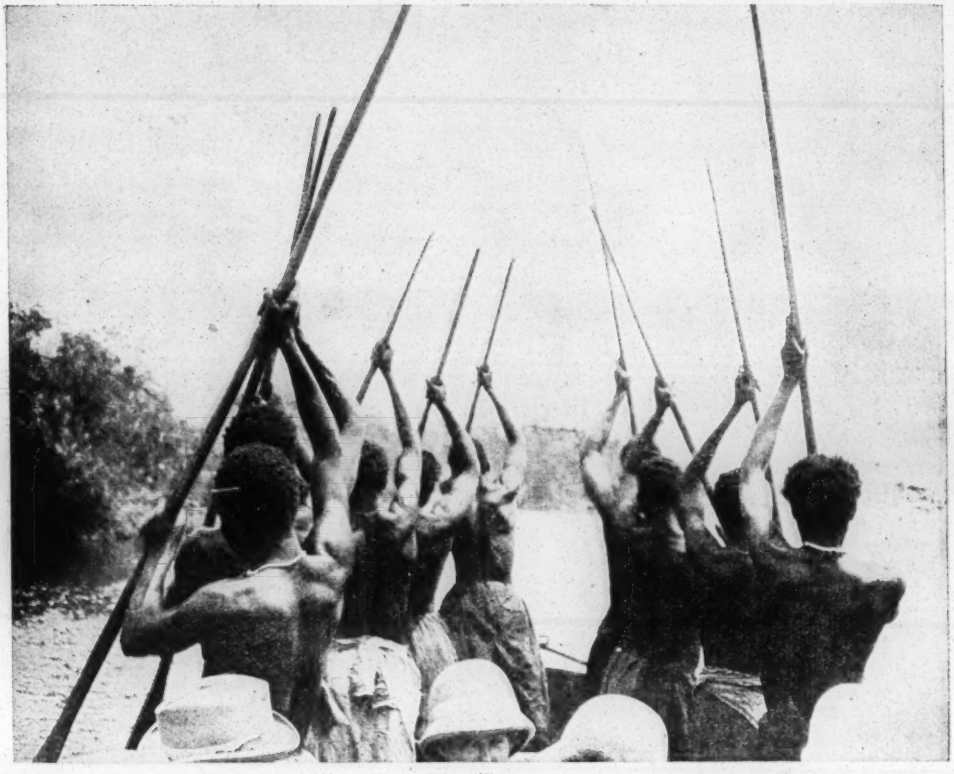


Photo by Prof. William M. Davis, Harvard University

ON THE ZAMBEZI

the cause of sleeping sickness, and this has been fully proved by the researches of Bruce and others, who have also shown that the infection is transmitted by the tsetse-fly.

IT IS CARRIED BY THE TSETSE-FLY

Trypanosoma gambiense has been found in West Africa from about 15° north to 15° south latitude; it is widely spread in the Congo basin, reaching a point about 11° south in the Lualaba River; it is found in the Tanganyika region and in Uganda and along the Nile as far as 6° north latitude. But its distribution is not uniform over this vast area; it corresponds with the distribution of a tsetse-fly, and is thus confined to the banks of rivers and lakes.

Nothing is known of the life history of the trypanosome, and it is impossible at present to make a dogmatic statement as to the relations which exist between it and the tsetse-fly. It seems probable that the tsetse-fly serves as an alternative host in a truly biological sense and not as a simple mechanical transmitter.

It has been proved beyond question that the infection is transmitted by a species of tsetse-fly (*Glossina palpalis*), but it is not definitely known that it is never transmitted by other species as well. It has been stated that a species of mosquito (*Stegomyia* sp.) is also capable of transmitting trypanosomiasis.

The disease affects individuals of all ages and of both sexes. Males, perhaps, more often contract the disease than females, because they are more constantly exposed to the attacks of tsetse-flies during the course of their occupations as paddlers, fishermen, etc.

In the advanced stages of the disease, the sufferer lies about in the corner of his hut, indifferent to everything going on about him, but still able to speak and take food if brought to him. He never spontaneously engages in conversation or even asks for food. As torpor deepens, he forgets even to chew such food as is brought to him, falling asleep, perhaps, in the act of conveying it to his mouth or with the half-masticated bolus still in his cheek. As the lethargy becomes more continuous, he wastes quickly from lack of nourishment, and the end is brought about either by coma or by the increasing weakness.

The mortality of the disease must be reckoned as 100 per cent. It is possible, but there is no definite knowledge on this point, that recovery may take place in the very early stages of trypanosomiasis, but when once the sleeping-sickness stage of the disease has been reached it is probably invariably fatal.

INVESTIGATIONS BY DR KOCH

Not longer ago than September, 1907, Professor Koch, in reporting on his investigations made in Lake Victoria, added yet another terror to the already gloomy outlook on sleeping-sickness. He found a large number of cases in districts where the tsetse-fly was absent. The majority of the cases were undoubtedly imported, occurring in people who worked in the rubber industry in forests along the lake shore, where tsetse-flies abounded. But fifteen of the cases could not by any possibility have been imported. All were women and all were wives of men employed in the rubber industry in a tsetse-fly area. Assuming that no other biting insects than tsetse-flies are capable of transmitting the disease, the only tenable hypothesis is that these women contracted it from their husbands. If Professor Koch's observation is correct, the prospect of eradicating sleeping-sickness is a sufficiently remote one, as not only can the disease be transmitted by a widely-distributed fly, but it also belongs to the category of venereal diseases, and experience of many centuries has shown the difficulty of stamping out diseases of this class.

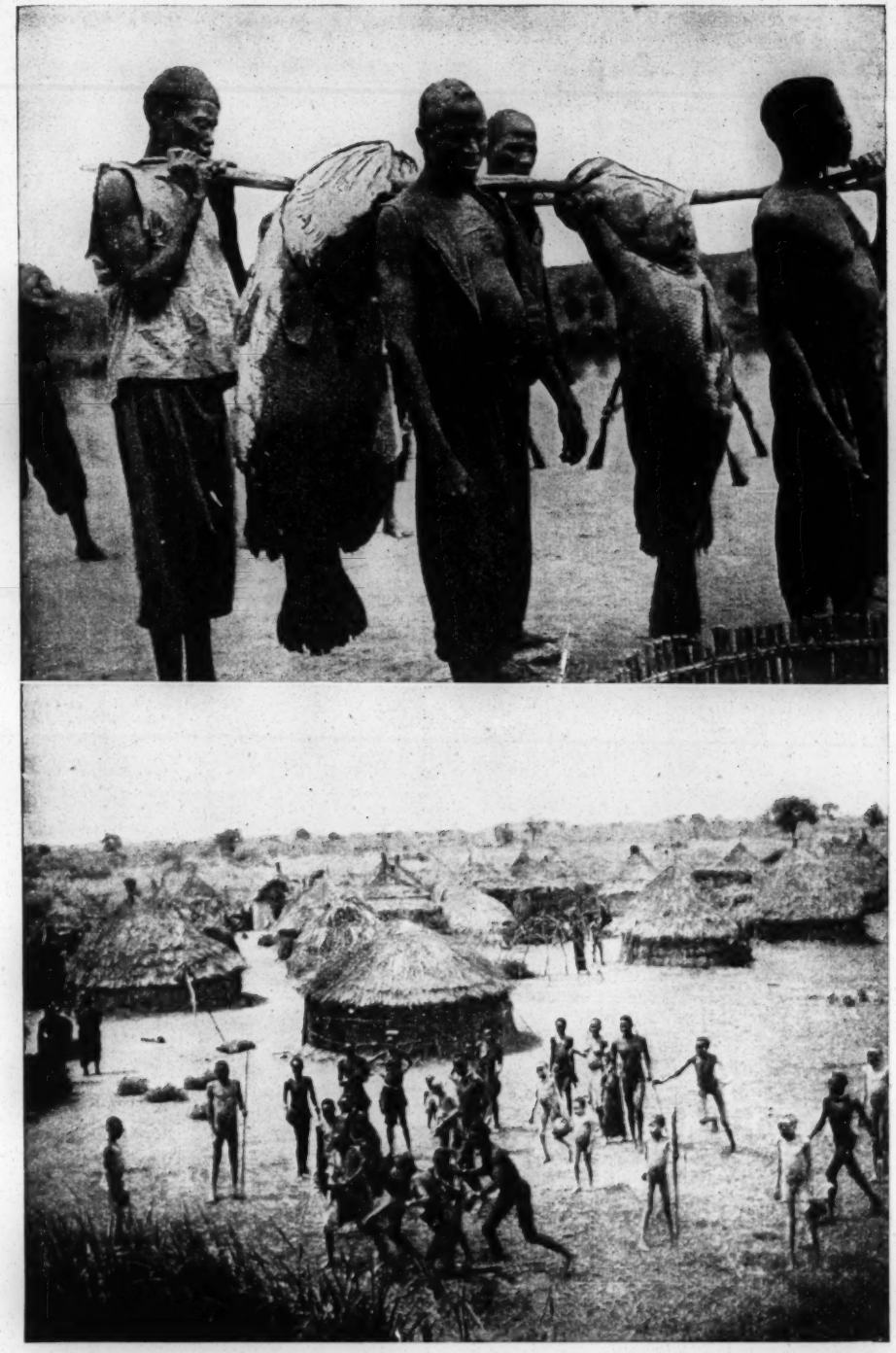
If the natives could be induced to wear some sort of light garment, they would obtain a certain measure of protection; but water-side populations in Africa usually go even more naked than others.

The most recent recommendation is that of Professor Koch, who asserts that in the neighborhood of the Victoria Nyanza the tsetse-flies subsist almost entirely on the blood of crocodiles; he therefore suggests the extermination of these reptiles by the destruction of their eggs. It is difficult to take this suggestion really seriously, because the numbers of crocodiles are so immense, their distribution is so wide, and their powers of reproduction so great.

THE TSETSE-FLY

The tsetse-flies (*Glossinæ*) comprise ten species, which are confined to Africa. They are sombre-colored, narrow-bodied flies from about 8 to 12 millimeters long, with a thick proboscis projecting horizontally in the front of the head. When the fly is at rest the wings overlap each other, crossing like the blades of a pair of scissors. *Glossina palpalis* has been found from Senegal to Angola on the west, through the Congo and Lualaba to Tanganyika and the Victoria Nyanza, and northward along the Nile to the Uganda-Sudan border. The flies are seldom, if ever, found above 4,000 feet and always near water. A swampy shore is not much to their taste; they are most commonly found along those stretches of river bank or lake shore where there is a beach of mud or sand overhung by trees or bushes.

Tsetse-flies do not lay eggs, like most diptera, but larvæ, which turn into the pupa condition almost immediately after extrusion. The perfect flies, both male and female, are blood-suckers. They feed during the day, and by reason of their exceedingly rapid flight and the extraordinary softness with which they alight on their victims, it is very difficult to detect them until after the mischief has been done.



Photos by Herbert L. Bridgman

VILLAGE SCENES ON THE NILE, NEAR BOR

For a description of that region north of Uganda, through which President Roosevelt will journey, see "The New British Empire of the Sudan," by Herbert L. Bridgman, NATIONAL GEOGRAPHIC MAGAZINE, May, 1906.

NATAL: THE GARDEN COLONY

By Russell Hastings Millward

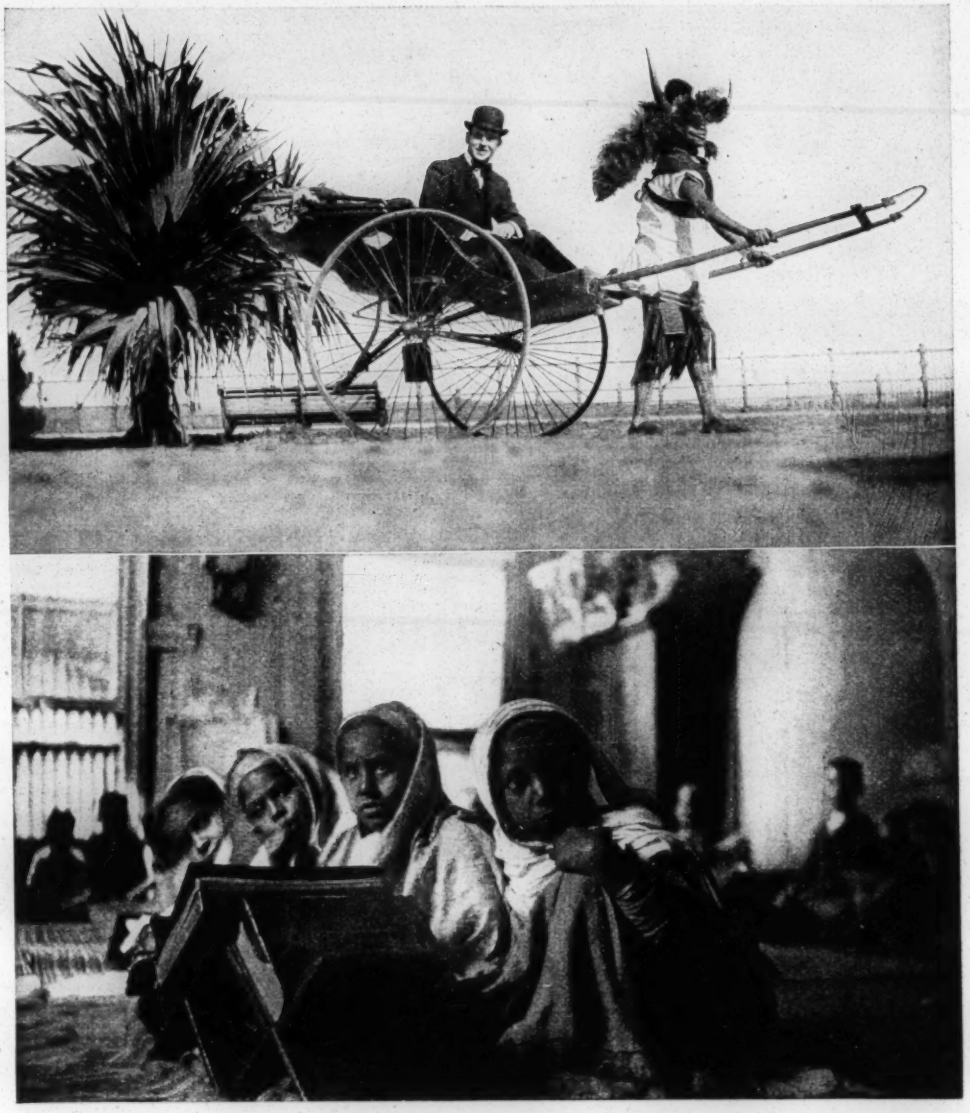
Formerly American Vice-Consul at Durban, Natal

A VAIN attempt to discover a sea route to the East Indies, the same purpose which carried Columbus westward across the Atlantic Ocean, sent Vasco da Gama southward along the coast of Africa, and, after rounding the Cape of Good Hope, his small fleet, consisting of three caravels, was brought to anchor in latitude 29° 52′ south, longitude 31° 2′ east. This was on Christmas day, 1497, and as the intrepid Portuguese navigator was carried ashore he christened the newly-found territory Natal, "Christmas Land," or "Land of the Nativity." No more befitting name could have been applied, and today Natal is known as "The Garden Colony" of Great Britain.

A ZULU NURSE BOY IN DURBAN, NATAL
Zulu women are seldom employed as domestics

As the harbor is entered, the bay with its wide expanse of water and the imposing bluff with its thickly-wooded background of green hills, present a magnificent view. Just across the bay can be seen the town of Durban, described by Max O'Rell as "the prettiest and most coquettish town in the South African colonies"—the blue Indian Ocean at its feet and a series of terraces, banked with flowers and foliage, rising from the sealevel to a height of 500 feet. Durban enjoys the distinction of being a seaport and watering-place as well as one of the finest coaling stations in the world. Here, from a waste of sand and bush, trampled by wild beasts and serpents, has sprung one of the leading business centers of South Africa. From a quaint little two-mile railroad, the first in Africa, built in 1860, from the point to Durban, has developed over 1,200 miles of modern railways connecting with the interior and placing this picturesque port in a position second to none as a shipping point. The chief exports from here consist of wool, sugar, tea, hides, skins, angora hair, coal, maize, and wattle bark.

Upon arrival at the docks in Durban a long line of rickshas will be found waiting to carry passengers swiftly and silently to their destination. For sixpence an interesting ride can be had through the town, including a trip along the esplanade by the bay and the Victoria embankment. Of all the sights in South Africa none is so impressive as the ricksha boy, with his head-dress of great horns and colored feathers and his highly-decorated, whitewashed legs. Perhaps he will tell you that he is "Champagne Charley" or "Jim Fish," names of two clever runners who won fame by



Photos by Russell Hastings Millward

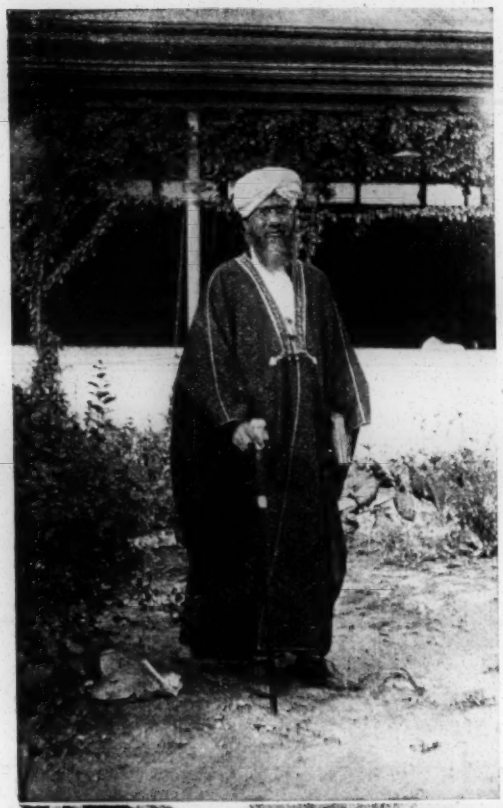
A "RICKSHA" RUNNER IN DURBAN

ARAB CHILDREN LEARNING THE KORAN AT THE MOSQUE IN DURBAN, NATAL

their marvelous performance in carrying dispatches for great distances.

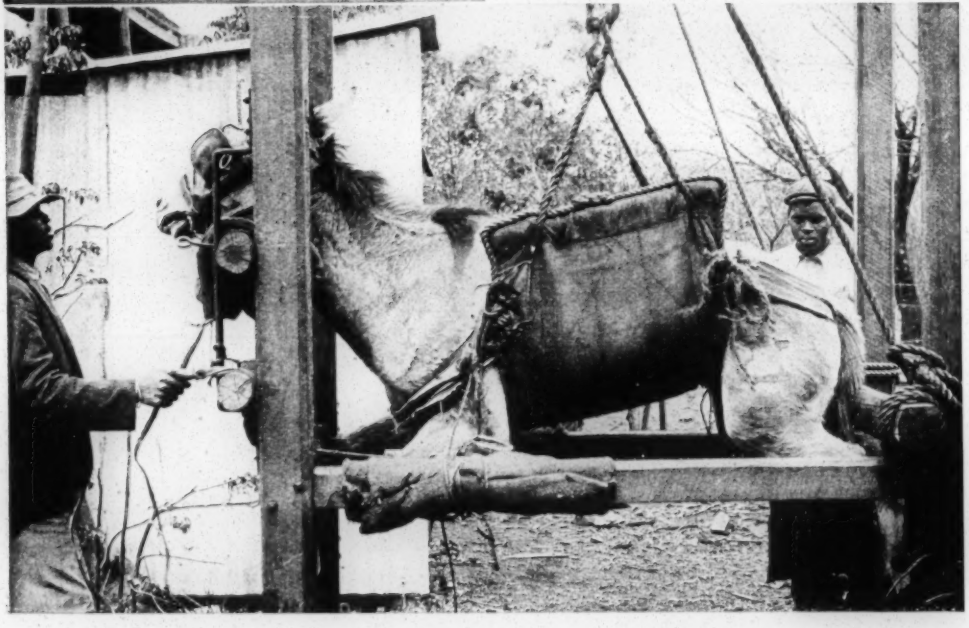
Many of the Zulu runners can cover with ease 100 miles in 24 hours, afoot, and that, too, over rough ground that is almost impassable to the white man. The ricksha, however, with its picturesque runner is now being rapidly replaced by the more modern horse cab, and it is a matter of but a short time before this distinctive feature of Natal shall have passed entirely.

To the tourist Durban offers a wealth of attractions. The numerous well-ap-



pointed hotels, the botanical gardens, the driveways and parks, with their semi-tropical trees and plants, the cricket field, the polo grounds, the many types of architectural beauty exemplified in the public buildings, and the back beach, with its unexcelled bathing facilities, are at all times most agreeable. Although it is occasionally quite hot during the summer months, Durban affords an excellent resort in the winter season, from May to August, when the days are dry, cool, and unclouded.

A visit to the Indian quarter, with its Mohammedan mosque, coolie markets, and numberless Hindoo shops, will be well worth while. The Arab children, studying the Koran aloud in the classroom at the mosque, present a most pathetic side to the recent Indian invasion of South Africa which is now attracting such worldwide attention. Throughout the entire colony the Indian will be found in all the walks of commercial and professional life, from the ordinary laborer coaling ships to the thoroughly educated and trained barrister at law, fighting for the rights of his countrymen. The Afrikander objects, but the Indian insists



Photos by Russell Hastings Millward

MOHAMMEDAN HIGH PRIEST IN DURBAN

SHOEING A MULE AT GREYTOWN, NATAL

that he is also a subject of Great Britain and entitled to the same consideration as his neighbor.

While Natal abounds in resorts where nature is pictured in its gayest colors, there is one place that stands out by itself. That is Amanzimtoti (Sweet Waters), situated about 18 miles south of Durban on the shores of the Indian Ocean, at the mouth of the Amanzimtoti River. Along either bank of this poetic river will be seen many native kraals and a native life that is fascinatingly primitive and picturesque. Just over the hills, about 4 miles from Amanzimtoti, is located the Adams Mission Station, where for over 50 years the American missionaries have trained the natives not only as preachers and teachers, but artisans and day laborers as well.

Near Pinetown, 17 miles north of Durban, stands the old Trappist monastery where that most austere order of the Catholic Church, with its motto "Sub Silentio," solemnly conducts its humble workshops. Here native boys and girls are trained in almost every line of art, science, and industry, and under the silent and gentle guidance of the brotherhood of monks the sable apprentices prove themselves willing and obedient pupils.

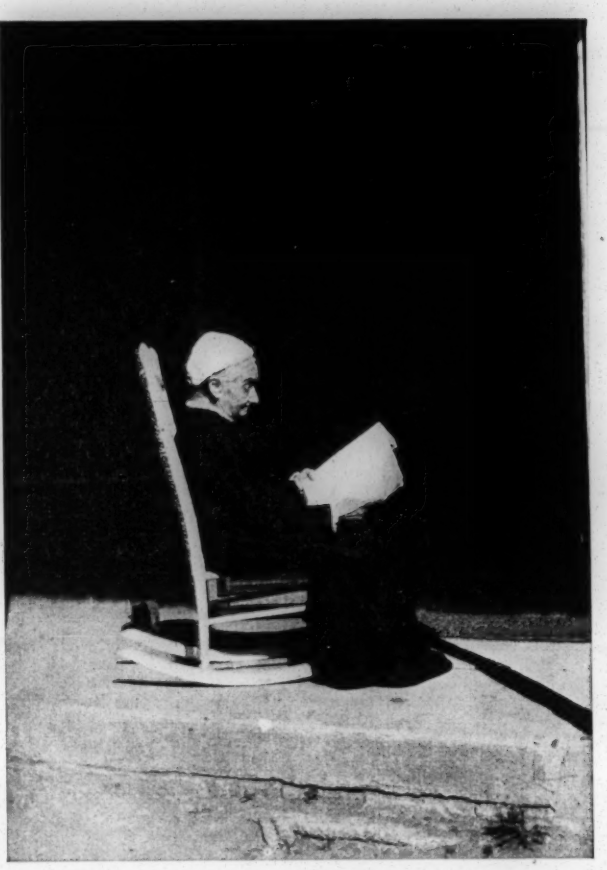


Photo by Russell Hastings Millward

NEARING THE END OF A MISSION: AN AMERICAN MISSIONARY IN NATAL

Pietermaritzburg, the capital, with a population of over 31,000, ranks second in importance to Durban. This city boasts of many public buildings that are of pretentious proportion and excellent design. The town hall is one of the most costly buildings in South Africa, and possesses the fourth largest organ in the world. There are also some notable monuments and statuary commemorating the acts of pioneers, soldiers, and statesmen. The salubrious climate of this district is especially favorable to patients suffering from incipient bronchial ailments, and is one of the most equable on the continent. The quaint Dutch residences scattered throughout the city well merit a visit of the traveler, and convey an excellent idea of conditions under the old Boer regime.

Of the other numerous points of historic interest may be mentioned the battlegrounds at Colenso, Spion Kop, Vaal Krantz, Ladysmith, Elandslaagte, Glencoe, Dundee, Newcastle, Ingogo, Tugela, Majuba Hill, and Laings Nek, where important and decisive battles were fought during the Boer war.

Richmond, where the rebel chiefs were tried and sentenced to imprisonment at St. Helena; Eshowe, the home of Dinizulu, the great Zulu chief; Greytown, the

Photo from Russell Hastings Millward

A ZULU WARRIOR: NATAL

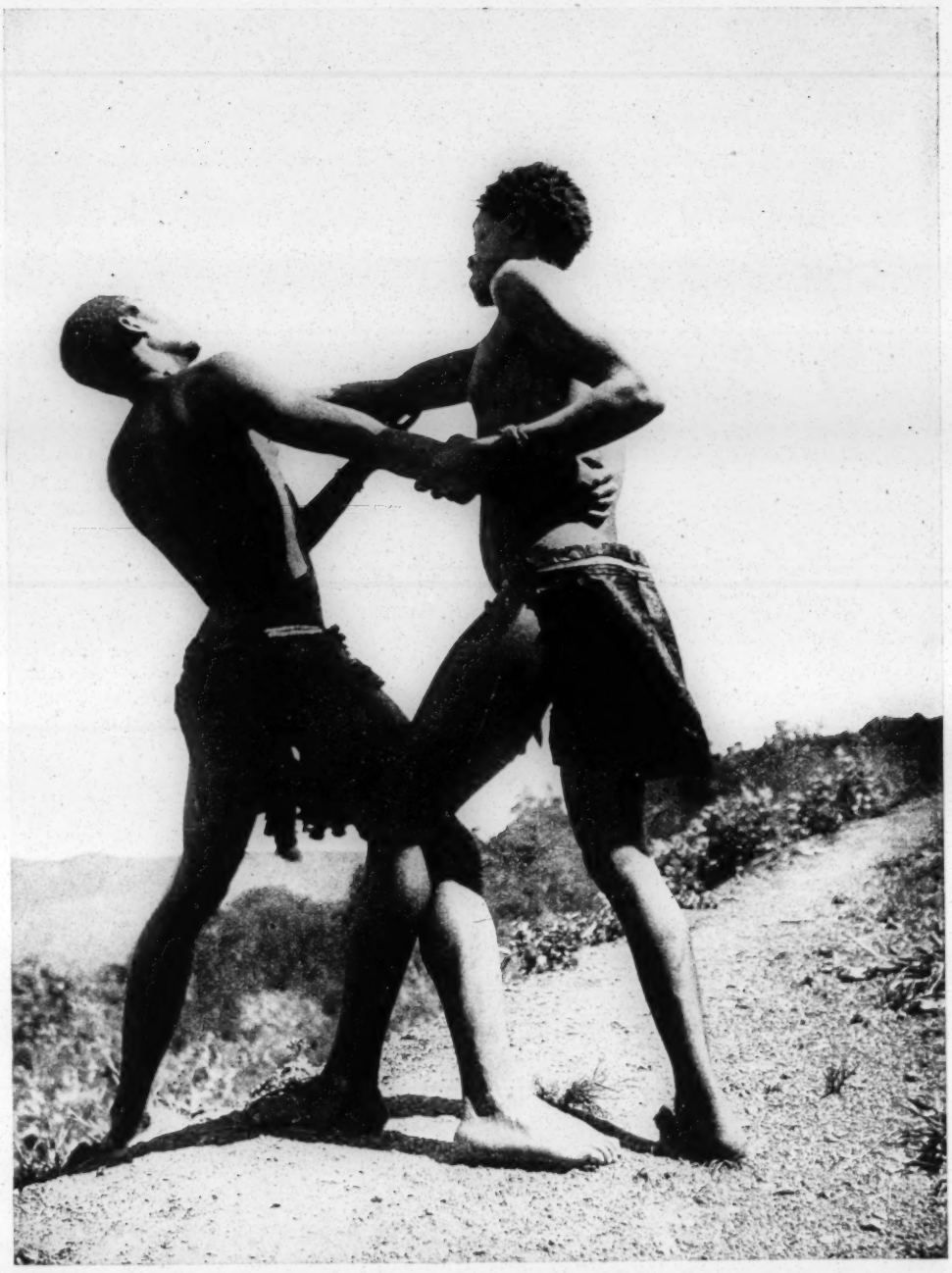


Photo from Russell Hastings Millward

A ZULU WRESTLING MATCH: NATAL

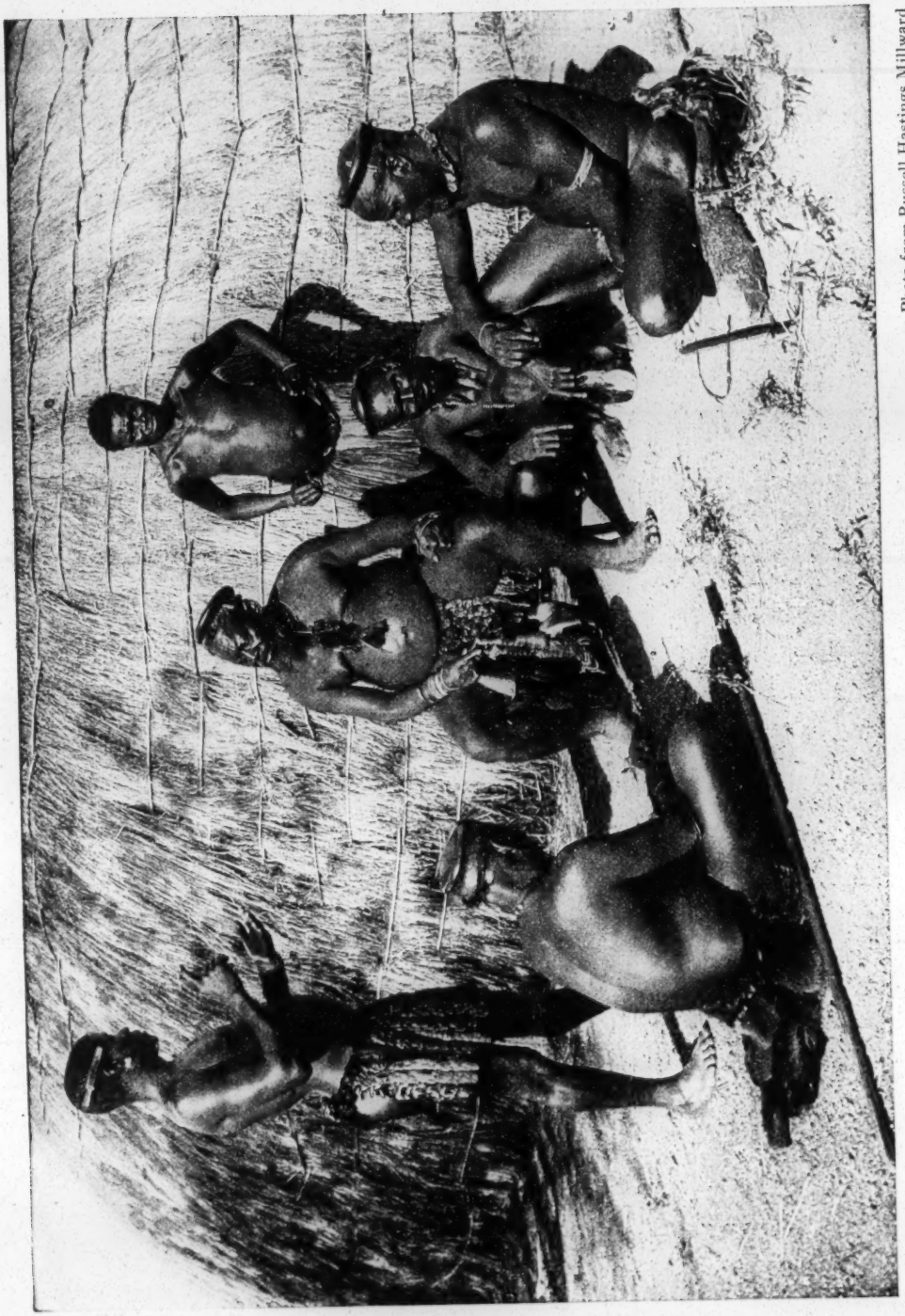


Photo from Russell Hastings Millward

A NATIVE TRIAL IN NATAL

Photo by E. L. Sechrist

MARK, A NATIVE EVANGELIST, PREACHING IN A KRAAL: NATAL

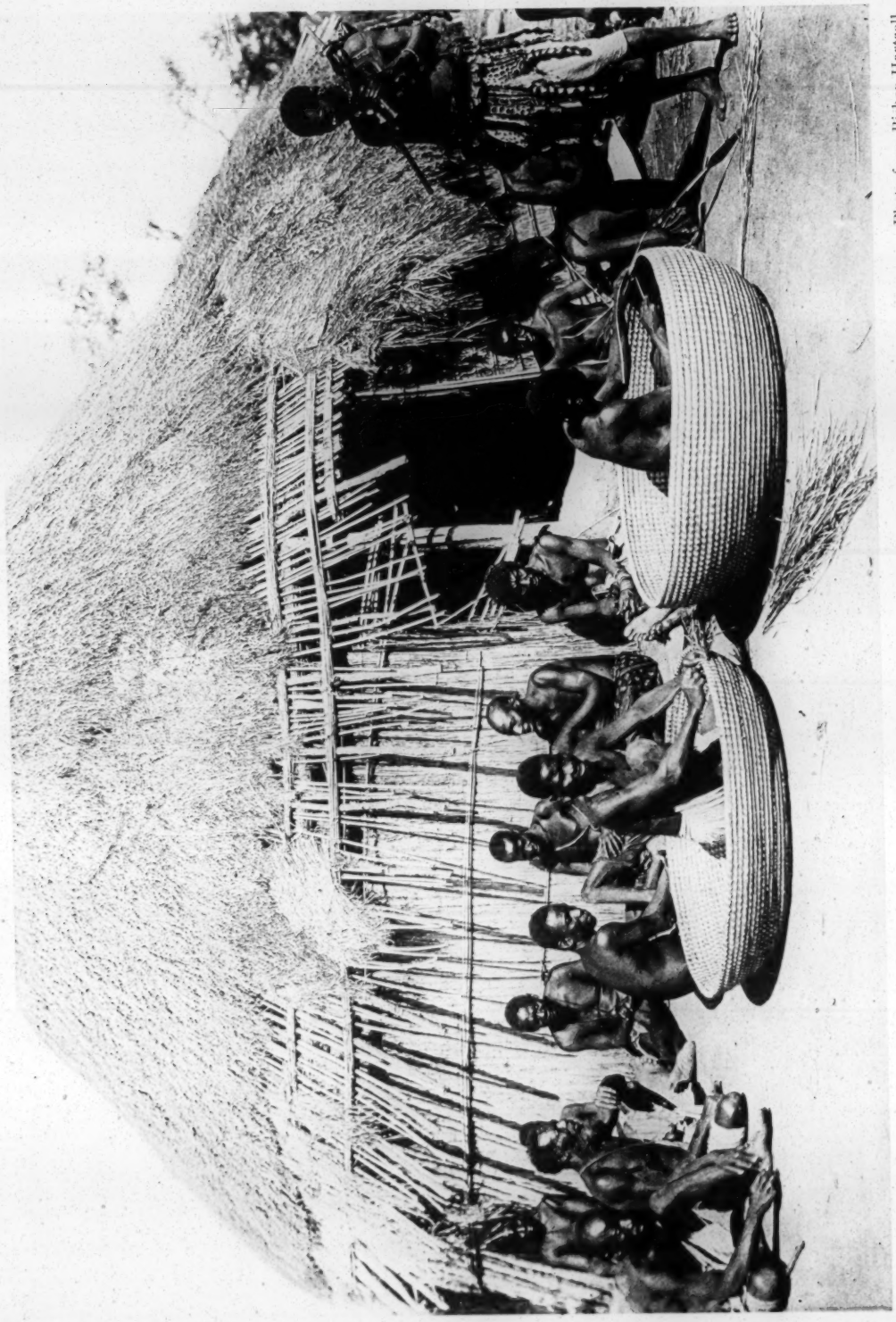


Photo from Bishop Hartzell

NATIVE INDUSTRIES NEAR DURBAN, NATAL

center of the Boer farming district, and the falls of the Umgeni River, at which point the water is dashed over a precipice 360 feet in height, are all points of great interest.

Natal is administered by a governor, appointed by the King of England; a ministry, composed of 6 members; a legislative council, composed of 13 members, appointed for ten years by the governor, with the advice of the ministry, and a legislative assembly, composed of 43 members, elected by voters having a property qualification of £50, or paying rental at the rate of £10 per annum, or having an annual income of £96. For local government there are municipal corporations at Durban, Pietermaritzburg, Newcastle, Ladysmith, and Dundee, and local boards at Verulam and Greytown.

The colony, covering an area of over 36,000 square miles, may be correctly divided into three districts, as follows: The coast district, extending inland for a distance of 15 miles, which is of a semi-tropical nature, and where coffee, sugar, tea, maize, arrow-root, and tobacco are raised; the midland district, where cereals and fruits are grown, and the upper district, where stock-raising is carried on, and where coal, lime, iron, copper, and gold are found. All the soil is of a highly fertile variety, and easily adapted to almost any kind of fruit or agricultural product.

The population of Natal (1906) is given as 1,151,907, including 94,370 whites, 112,126 Indians and Asiatics, 6939 mixed races, and 938,472 natives.

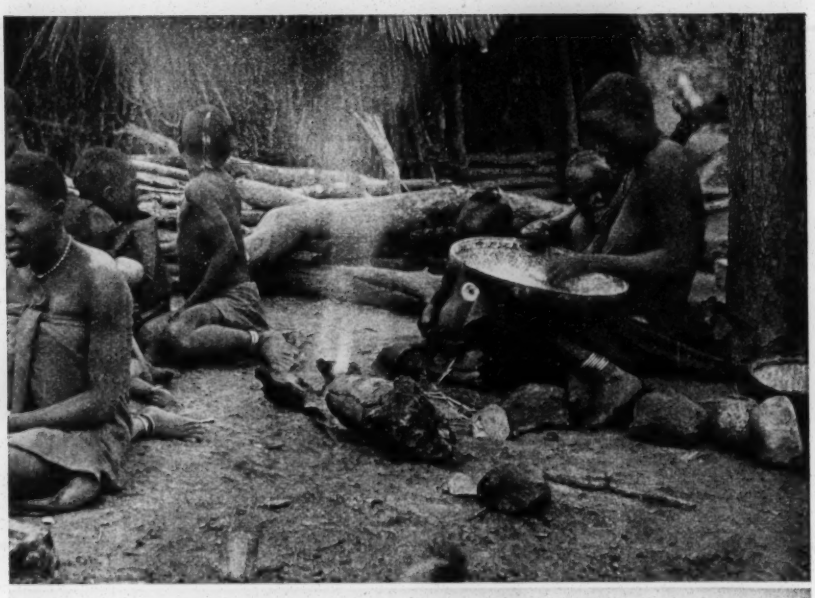
Religion is well provided for by denominational bodies, but there is no aid rendered by the State. Missionary stations, representing nearly every nation and religious denomination, are established in many districts throughout the colony, and are doing much good work among the natives.

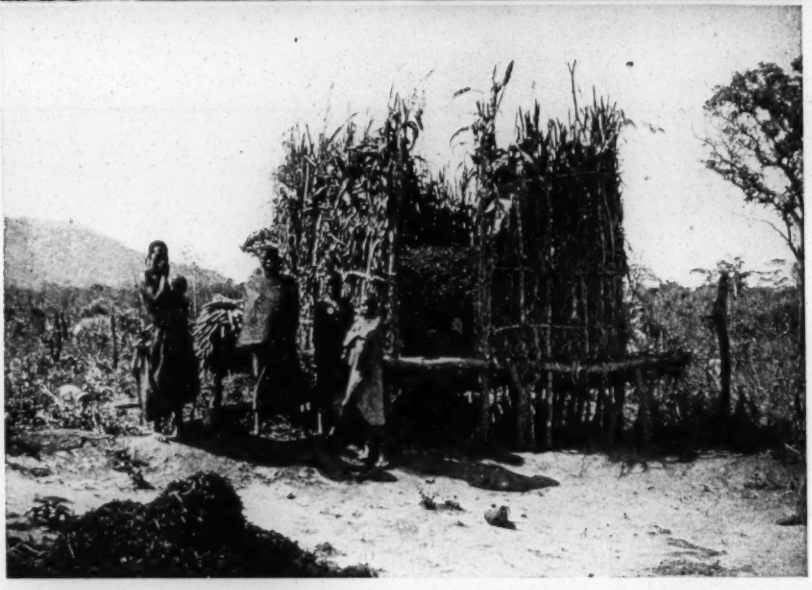
There are 34 government primary schools, and a large number of other primary and secondary schools for both European and native children, which are aided and inspected by the government. Schools are also conducted by the missionaries, and largely attended.

Many of the natives live apart in locations provided for them by the government, about 2,250,000 acres of land being vested for this purpose in the native trust. A native high court administers civil justice and deals with all the political crimes and crimes arising out of native law and custom—ordinary crimes falling under the ordinary criminal law. Natives can acquire the franchise under certain conditions. When brought before a native court, in tribal matters, a native practically pleads his own case before his chief, having no defense, with the exception of his own statements, and accepting such penalty as might be imposed by the court without further appeal.

It has been broadly but erroneously asserted that the native girls are bought and sold in marriage, and this impression should be corrected at once. When a Zulu boy has found his affinity, or rather one of many of them, he declares himself to the girl's father, and is informed how much "lobola" is necessary to effect a legal marriage arrangement. "Lobola" consists in nothing more than a gift of a certain number of cattle, usually 10 to 20, as a guarantee of good faith and evidence that the prospective husband is able to provide. The title to the cattle and their offspring does not pass to the father of the girl, although he receives and holds possession of them, but to the children, for whose benefit the "lobola" is held in trust. Should there be no children, and in the event of the death or divorce of the wife, the cattle are returned to the husband, provided that he has been kind and faithful. If, however, he has been found guilty of any cruelty to his wife, in case of divorce all rights to the cattle are forfeited by the husband and they are held for the benefit of the divorced wife.

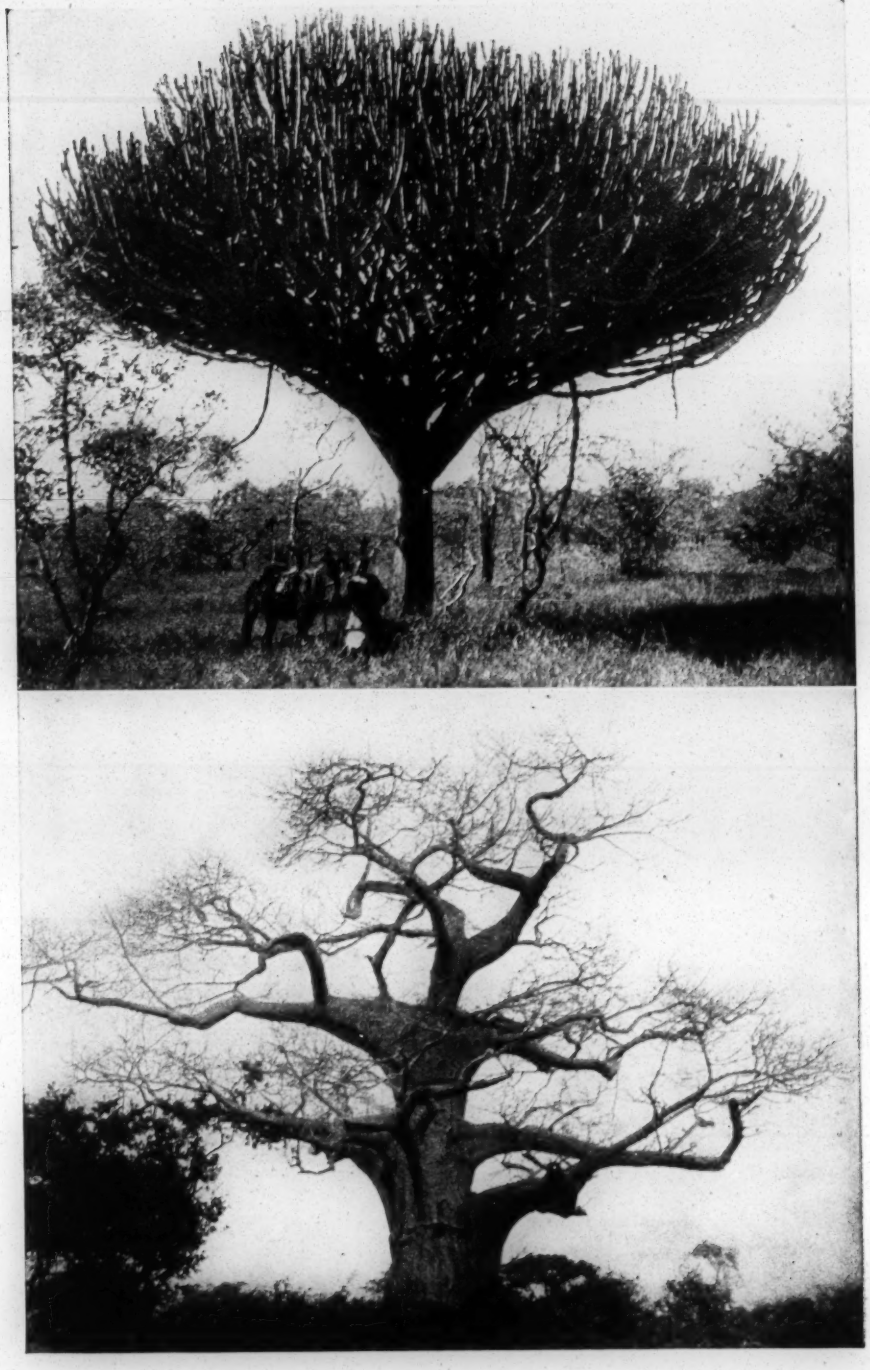
Many strange customs and laws obtain in Zululand, but there is no moral code in all the world more rigidly observed than that of the Zulus. Women do practically all of the agricultural work





WOMAN STRINGING BEADS—THE LITTLE FIRE TYPICAL OF EVERY NATIVE STOPPING-PLACE: NATAL

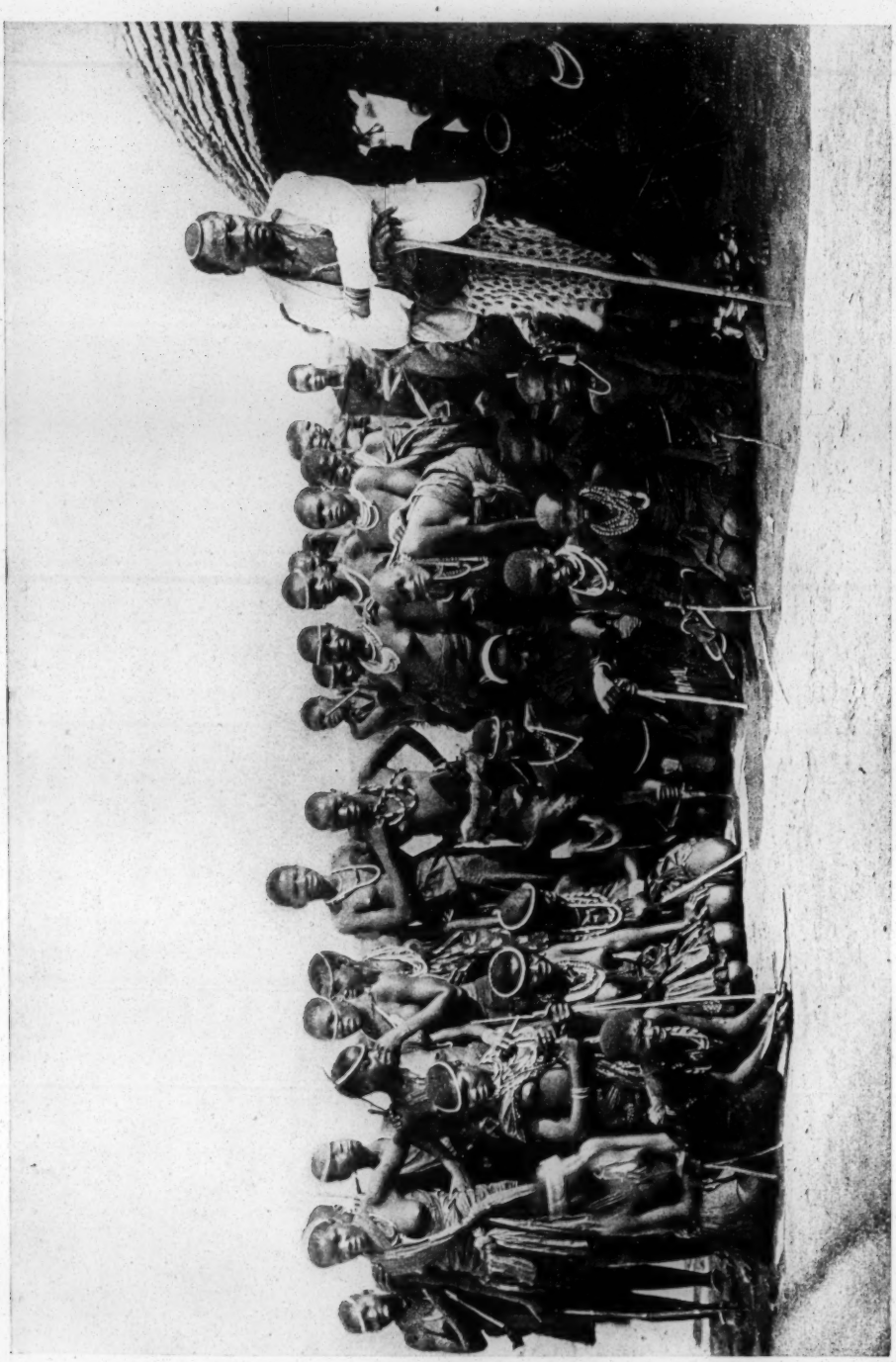
TEMPORARY GRANARY WHILE GRAIN IS DRYING BEFORE THRESHING: NATAL



Photos by Dr C. E. Akeley

TYPICAL TREES IN A SOUTH AFRICAN LANDSCAPE: EUPHORBIA

BAOBAB TREE



A ZULU CHIEF AND HIS WIVES: NEAR BULAWAYO, RHODESIA

Each has her own home, where she has her garden and cares for her children. Scarcely any question in Africa presents more difficulty than does polygamy

and provide for the family, while the men, by tradition, are busily engaged in war or hunting. The women also brew the native beer about which so much has been written by the missionaries. If it becomes necessary for any member of the family to hire out as a domestic, the lot usually falls to the man, as the women seldom leave their native kraals except in groups, and well attended by relatives. Native men are employed in the villages as cooks, waiters, housemen, washmen, messengers, and nurses, and in most cases are superior to women as servants.

Although polygamy is recognized and practiced by the Zulus, each wife is accorded the same consideration and treatment, and the relation between the different wives and their children is harmonious and affectionate. Jealousy, malice or hatred is seldom seen in any character, and no more peaceable and lovable race exists. A man can have as many wives as he can provide for, but he must not look a mother-in-law in the face; and if, by accident, he should come across her, he immediately covers his face and avoids her as graciously as possible. Woman hoes the field and reaps the harvest, but her husband cannot appropriate any part of the grain or stores which she has laid by. It is the wife's duty, however, to provide food for the husband and children, and to otherwise look after the household while the man attends to the cattle. No woman is permitted to cross the paths leading to the kraal where the cattle are kept or to enter the enclosure under any circumstances. Children in the native villages are brought up in an atmosphere of happiness, and discord of any kind is almost unknown in Zululand, except where the white man has forced his commercial invasion.

Few countries have felt the waste, sorrow, and ill effects of war more than Natal; but her people have made a courageous struggle for supremacy, and are today showing the world that "out of adversity springeth prosperity" and that "The Garden Colony" is one of loyalty and a credit to the crown of Great Britain.

THE MAGNETIC SURVEY OF AFRICA

By L. A. Bauer, Director, Department of Terrestrial Magnetism, Carnegie Institution of Washington

On November 26, 1903, there left Cape Town an interesting and important scientific expedition of the Carnegie Institution of Washington, in charge of Dr J. C. Beattie, director of the Department of Physics of South African College, at Cape Town. Starting out in an ox-wagon and heading in a northwest direction, the party had reached Ookiep, via Calvinia, in the extreme northwest part of Cape Colony, by the end of December.

The purpose of this expedition is to make a series of magnetic observations consisting of the direction of the compass needle with reference to the true north, the dip of the magnetic needle (the south end dipping below the horizon in the Southern Hemisphere), and the strength or measure of the force exerted by the earth's magnetism in compelling a magnetized needle to set itself in some definite direction and not at haphazard. In the regions to be explored but few, if any, similar data have heretofore been obtained, and it was on this account that the Carnegie Institution of Washington decided to support this expedition as part of the general scheme for the magnetic survey of the earth now in satisfactory progress under the direction of its Department of Research in Terrestrial

Magnetism. During the late South African war it was even said that some of the difficulties encountered by the English soldiers in the first campaigns were due to the fact that the available maps either did not give the compass direction or what was given was more or less erroneous, and in consequence the directions followed did not invariably lead directly to the places desired.

In spite of the annoying delays due to breakdowns and the very trying weather encountered—dusty and windy, with temperatures usually over 100° F.—Dr Beattie had succeeded in making the desired magnetic observations at about 20 points between Cape Town and Ookiep, besides securing other geographical data of value.

The projected route from Ookiep is through German Southwest Africa to Windhoek. From Windhoek the overland trip is to be continued to Bulawayo, Rhodesia, and from thence through British Central Africa and German East Africa to Lake Victoria Nyanza, and finally through Egypt to Cairo, where connections will be made with the magnetic survey of Egypt by the British government.

Every facility is being furnished the party by the governing officials of the countries to be passed through, special credentials and passports, free passes on railroads wherever available, etc., being readily supplied. At times there will be required 100 or more porters for carrying instruments, provisions, camp equipments, and other baggage, and it is a pleasure to be able to record, as a token of the general interest being shown in this work, that the Honorable Dr Jameson and Sir Lewis Michell have agreed to contribute $500 toward the cost of the carriers in Rhodesia.

While Doctor Beattie is engaged on the work as outlined, another associate of the Carnegie Institution, Prof. J. T. Morrison, Department of Physics, Stellenbosch, Cape Colony, set out from Cape Town the middle of January to reach points along the southwest coast of Africa as far north as French Congo. He will penetrate into the country from the ports visited as far as available transportation facilities will readily permit; then, returning to Cape Town, he will do similar work on the east coast of Africa, finally joining Doctor Beattie.

Early in 1908 Mr Joseph C. Pearson, a magnetic observer of the Carnegie Institution, en route to magnetic work in Persia and Asia Minor, visited Alexandria, Port Said, and Cairo, and made magnetic observations at each place, his work in Egypt having been greatly facilitated through the kind offices of the British Ambassador, Mr Bryce. Mr Pearson since then, in the course of his work, has passed through Persia from north to southeast, and will most likely secure magnetic data at various ports along the Red Sea toward the end of the present year.

Thus, with the work already accomplished by various governments and with that now in progress under the auspices of the Carnegie Institution, it will not be many years more before it will be possible to map out, with a fair degree of accuracy, the magnetic conditions—for example, the compass directions—over the Dark Continent.

The new vessel of the Carnegie Institution designed for ocean magnetic surveys, the *Carnegie*, now in course of construction at Brooklyn, is expected to be cruising along the coasts of Africa in 1910 to supplement the port data being obtained this year by the observers named above. Furthermore, similar magnetic observations will be made on board the *Carnegie* at sea, so that the lines of equal magnetic declination or "variation of the compass," for example, may be drawn at the same time both over sea and land.

There is thus being rapidly realized for the first time the dream entertained by Alexander von Humboldt three-quarters of a century ago the completion of a general magnetic survey of the globe, embracing both sea and land, within a comparatively short period of time (10 to 15 years), instead of intermittent, non-interdependent, and desultory work spread out over many decades.

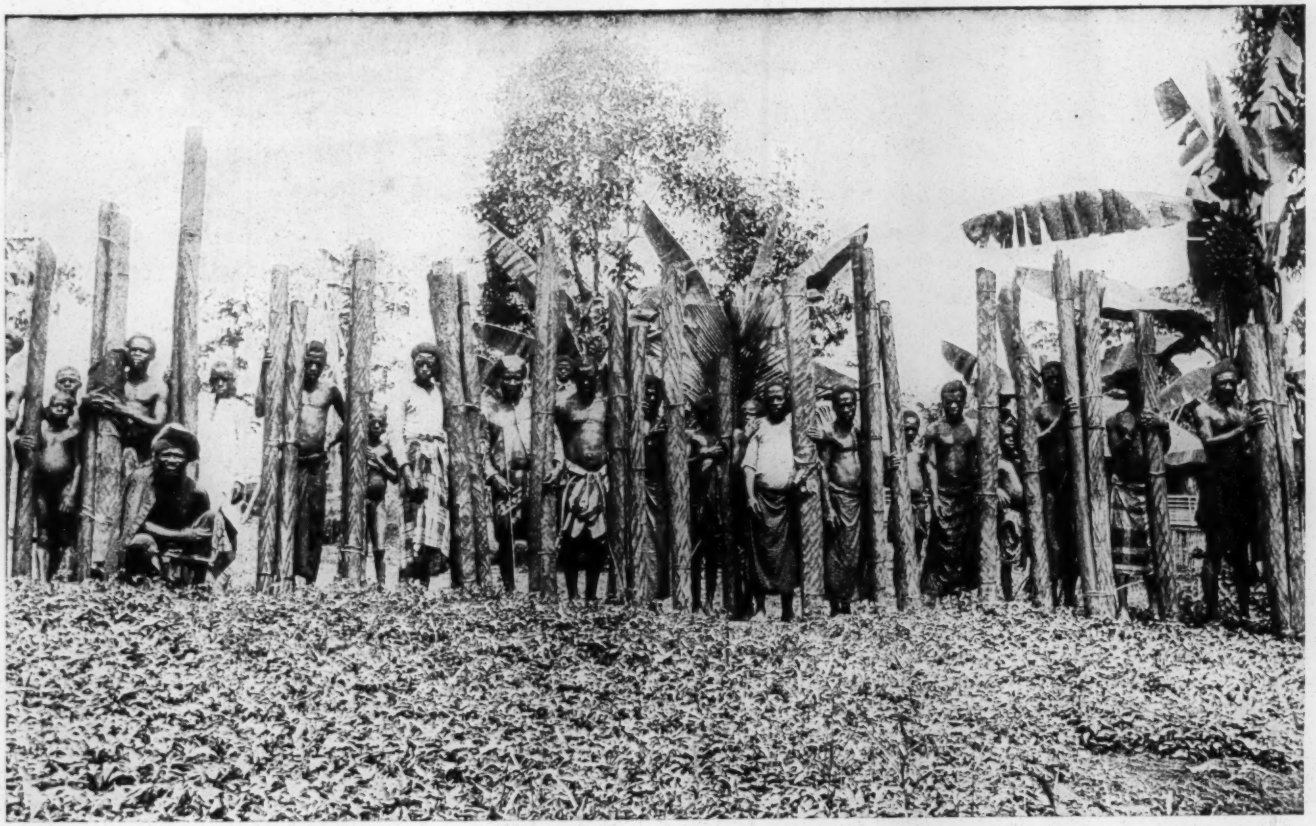
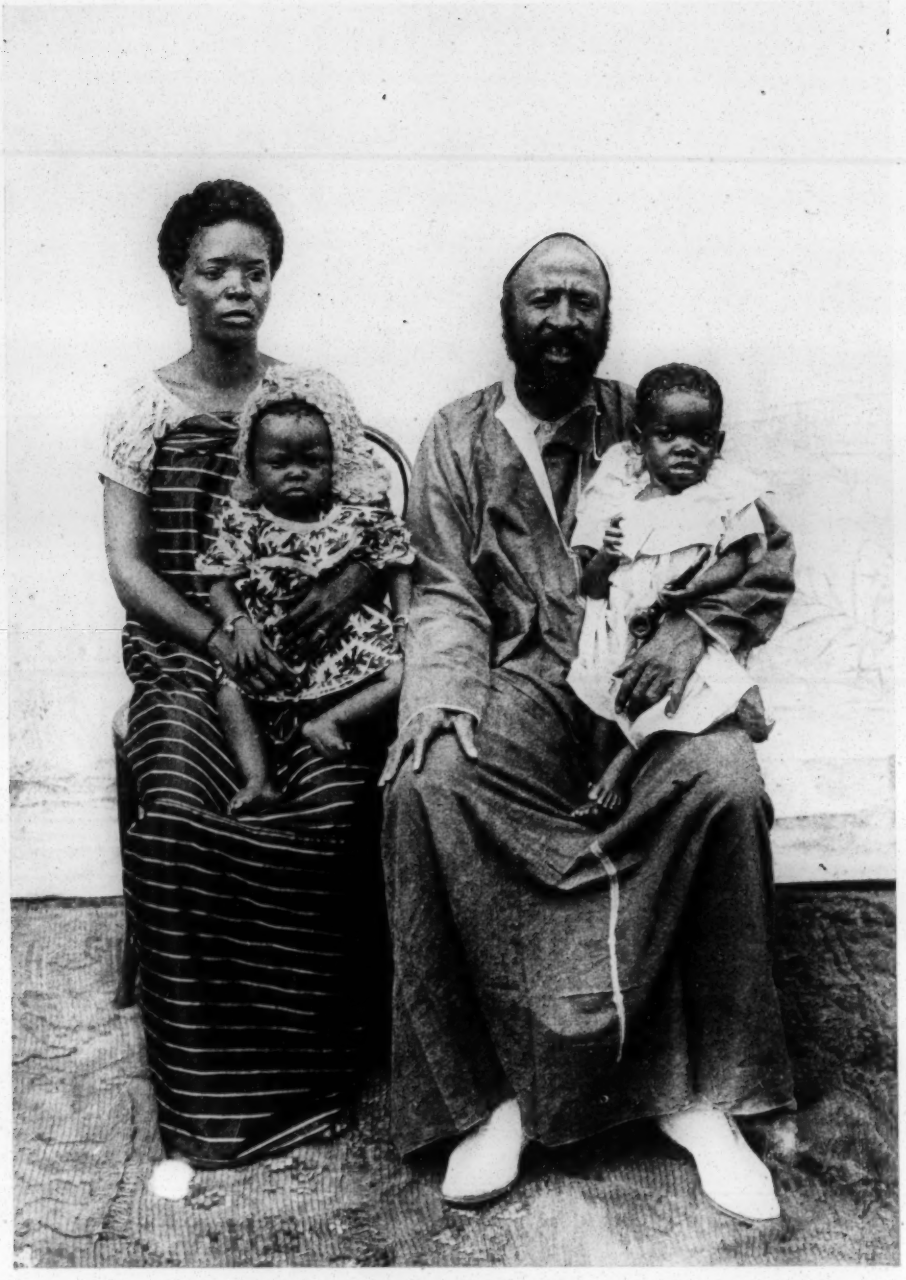


Photo from C. F. Friend

NATIVES TAKING BARK TO GOVERNMENT HOUSES IN WINDHOEK, IN GERMAN SOUTHWEST AFRICA

The houses are lined with mats of bark. German Southwest Africa is as large as the states of California, Colorado, and Washington combined. It has an estimated population of 200,000, of whom about 7,000 are whites; 4,600 of these are German soldiers. The whole southern part and much of the eastern is barren and desert.



A RICH NATIVE AND FAMILY OF ANGOLA

Bordering on the Congo Free State is the Portuguese territory of Angola, a country about as large as France and Switzerland and Italy combined. For every thousand people who have heard of the Congo it is possible that two have heard of Angola, and perhaps one of those two knows that from a time some score of years before the inauguration of the Congo State there has existed in that country a system of slavery which is only comparable with that of the Spaniards in the West Indies. Slaves are brought down from the far interior, often as far as 800 miles, by agents who think they have done well if one-half of their drove survive the journey. At the coast, knowing that it is impossible for them to return home, the slaves bind themselves to a term of service, which never ends, in the cocoa plantations. Angola is a poor country, poor in natural products of the soil and poor in minerals, but still moderately rich in men, in spite of having been squeezed for generations.—A. F. R. Wollaston.

THE "MARIMBO," THE NATIVE PIANO OF ANGOLA

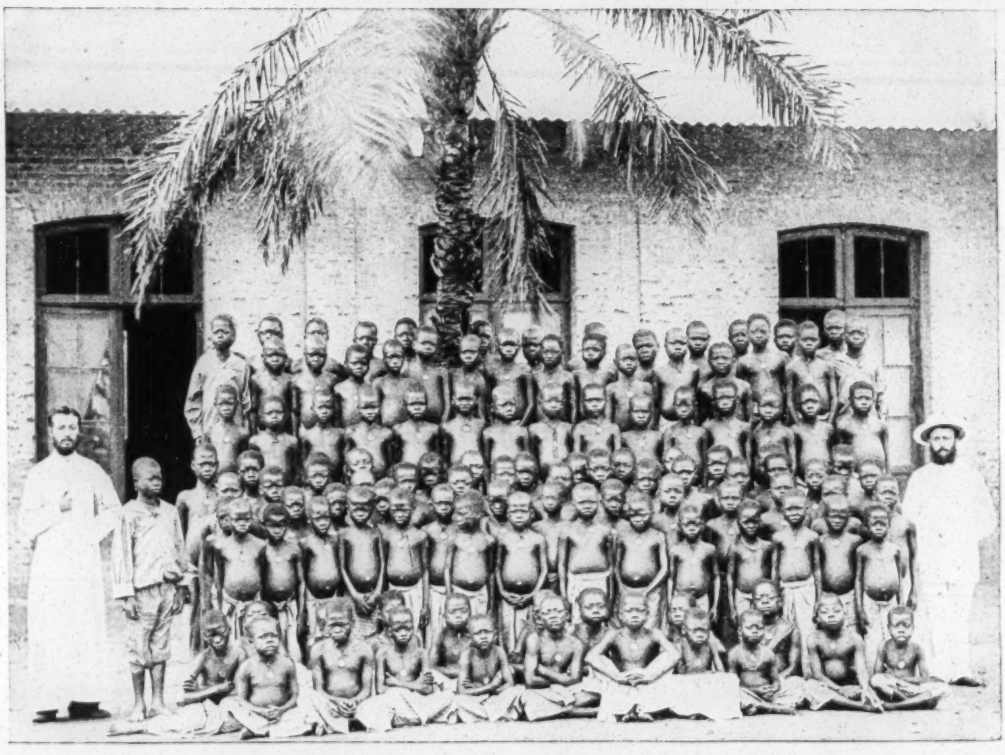


Photo from "The Story of the Congo," by H. W. Wack, G. P. Putnam's Sons, New York

MISSION CHILDREN IN THE CONGO STATE

Photo from E. H. Richards

NATIVE DRUMS IN AFRICA

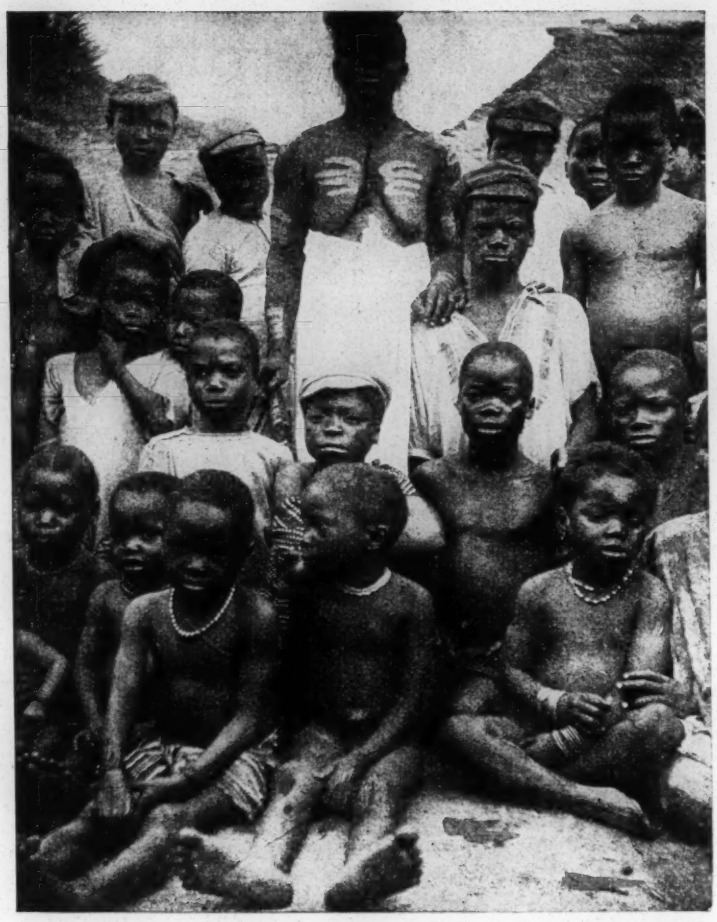
The native drum and the native piano are essential to a good dance

BOASSINE, A NATIVE KING AT KUMASSI, THE CAPITAL OF ASHANTI, ON THE GOLD COAST

The Gold Coast stretches for 337 miles along the Gulf of Guinea. It is about the size of Minnesota and contains a population of 1,500,000, of whom less that 700 are Europeans. The colony is now producing about $5,000,000 in gold annually

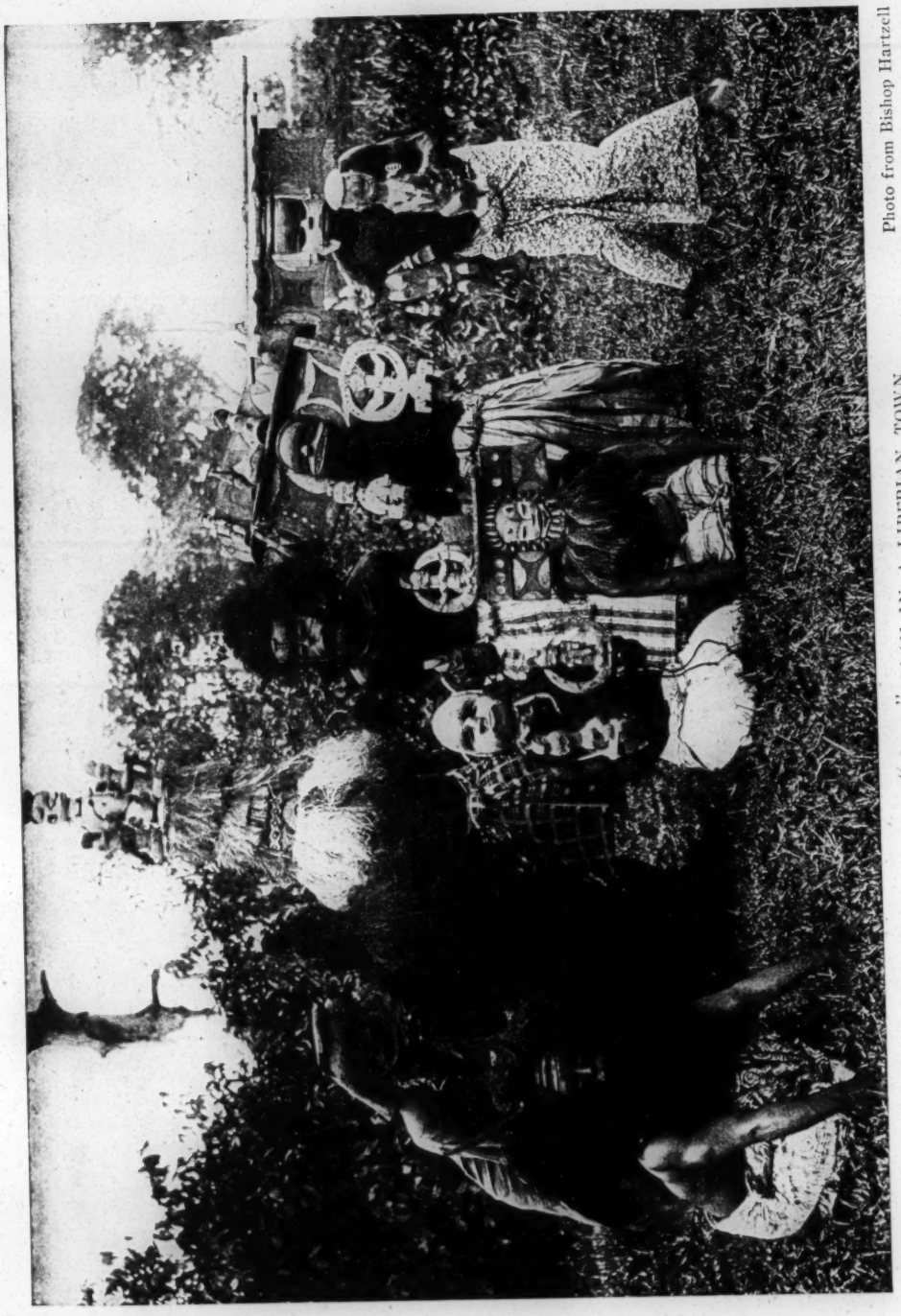
Photo from Dr A. P. Camphor

A KROO WARRIOR WITH CHARMS AND FETICHES, DRESSED FOR A RELIGIOUS PERFORMANCE, LIBERIA



GROUP OF KROO CHILDREN IN MONROVIA, LIBERIA

The Republic of Liberia occupies an area about the size of Pennsylvania, and, according to Sir Harry Johnston, is the most interesting portion of the West African coast lands. In its 43,000 square miles, more or less, are locked up, he believes, some of the great undiscovered secrets of Africa, besides an enormous wealth of vegetable products and perhaps some surprises in minerals. Liberia has a population of about two millions, of whom approximately one hundred and fifty thousand live along the coast and may be called civilized. There are only about fifteen or twenty thousand Americo-Liberians who are descendants of the American Negroes who were shipped back from the United States and the West Indies in the early part of the last century. These descendants are reported to be much less vigorous than the native stock. A fringe of land varying from ten to fifteen miles along the coast is cleared and settled, but the interior is for the most part covered by the great primeval African forest. The rainfall in portions of the Republic averages one hundred inches annually. See "The Black Republic—Liberia," by Sir Harry Johnston and U. S. Minister Lyon, in NATIONAL GEOGRAPHIC MAGAZINE, May, 1907.



A COUNTRY "DEVIL" PLAY IN A LIBERIAN TOWN

Photo from Bishop Hartzell

Photo from J. B. Magill, Monrovia, Liberia

COUNTRY DEVIL PLAY IN A LIBERIAN TOWN WHEREIN GIRLS ARE TAKEN OUT OF GREGREE BUSH, WASHED AND PREPARED FOR MARRIED LIFE ACCORDING TO NATIVE CUSTOM

BUYING A BRIDE'S BOXES FOR HER WEDDING TROUSSEAU: TUNIS

RESTING IN THE DESERT Photo and copyright by H. C. White Co.

IN CIVILIZED FRENCH AFRICA

By James F. J. Archibald, F. R. G. S.

EXPLORATION parties and travel writers seem to have quite overlooked the fact that the Dark Continent has its light spots as well, and that for the past sixty years the French people have been establishing colonies in northern Africa that are today models, well worth the serious study of nations supposed to be the great colonizing forces of the world.

When I made my first trip into Africa from Zanzibar it was exactly as I had expected to find it; my first visit to Capetown or Pretoria afforded no surprises; Dar-es-Salaam, the German East African colony, was just what an African colony should be; and Mozambique afforded all the material for kodak sketches that the most exacting explorer could demand; but my African surprises began when I started a three months' motor trip through Tunis, Constantine, Algeria, and Morocco, and from whence I have just returned.

At first I pitied myself in my supreme ignorance of the truly marvelous work the French government has done in Algeria in the past sixty years and in Tunis during the past twenty years, but since my return, filled with enthusiastic descriptive tales, I have found but two men who knew anything about the wonderful work and especially about the wonderful roads of the French colonies. One of these was a French engineer, who had built some of the roads, and the other was my friend Savage-Landor, who has been everywhere; even he betrayed some surprise with regard to the condition in the more remote parts of the interior. Since my return I have talked to many well-informed people until it has become a sort of a game with me to try to find a third who knows that the best roads of the world today are in Tunis and Algeria—not a few thousand yards of sample roads, but a few thousand miles of main roads and hundreds of miles of minor roads and trails perfectly built by the most skilled engineers of France.

When Count Roger de Martimprey suggested a motor trip through the colonies of northern Africa I immediately thought of the young German officer who has just completed a trip across Africa, and of the tales of his experiences—of building forty bridges within a few miles, of taking two weeks to go one mile, and of waiting six months in one place to send natives to the coast for gasoline. Count Martimprey's grandfather was one of those Frenchmen who led the armies of France and helped conquer the country, and was for many years governor of Algeria, so he assured me that the roads were perfect, but I had not been prepared in my mind for half the wonderful truth.

Good roads are not a source of surprise to a Frenchman, for all their roads are good, but the roads of Algeria and Tunis are as far superior to the French national roads as Pennsylvania Avenue is superior to a Virginia pike. I cannot make the comparison too strong, and I mean it literally when I say that in weeks of motoring we rarely found a road as rough as the new pavement on Pennsylvania Avenue is today. On the outskirts of some of the larger cities, where the traffic was very heavy, we sometimes found a few shallow ruts and traces of wear, but these are repaired constantly.

The roadways of Tunis and Algeria have been projected by the most skilled engineers of France; consequently the grades, curves, tunnels, and water-spans are of the highest order of perfection. There are few roads in French North Africa that could not be used as the way of an electric or steam line without any regrading or leveling. The most important feature of the construction is that they are absolutely straight where the character of the country will permit. A direct line is drawn on the map between two points, and to all purposes that is the

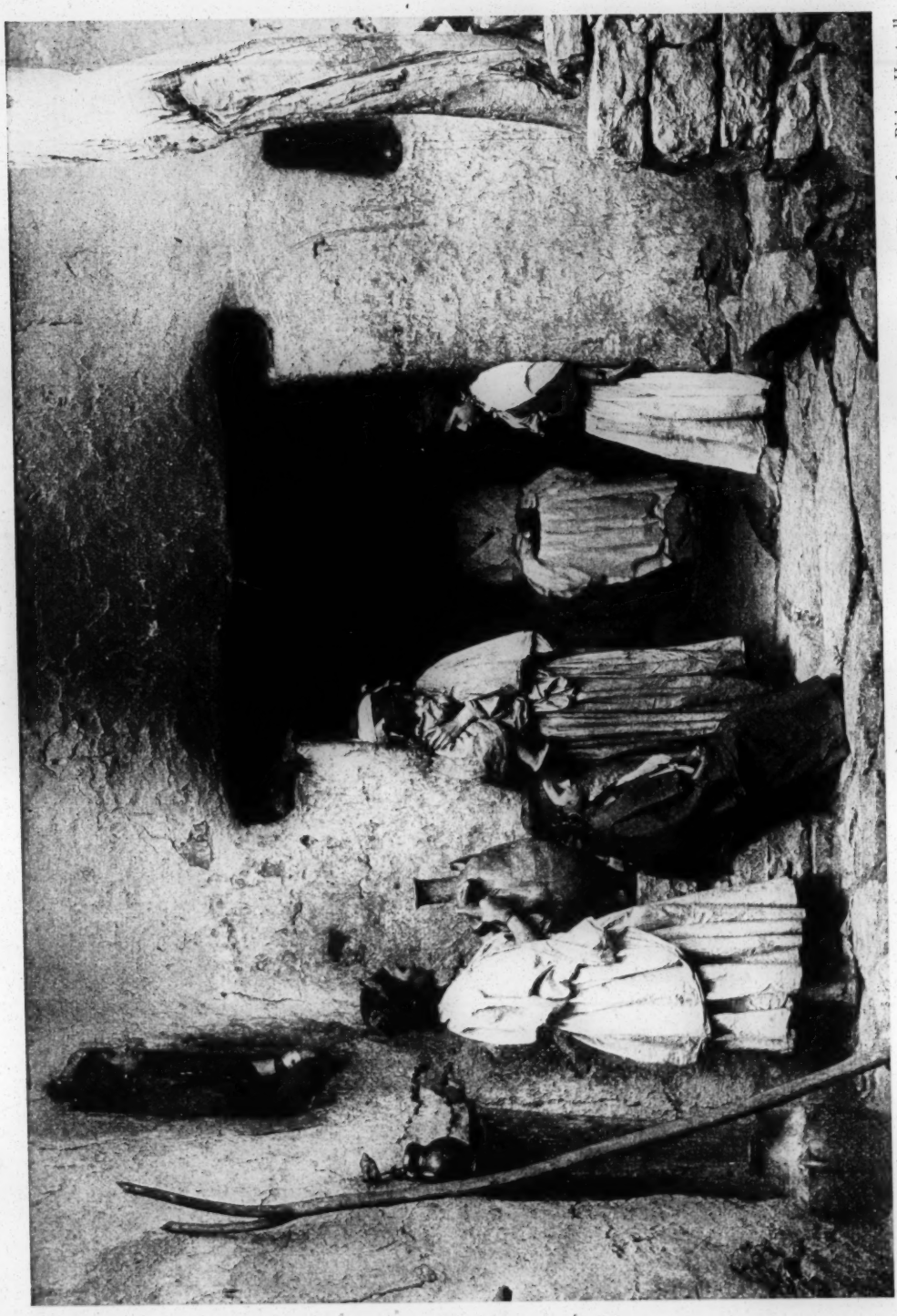


Photo from Bishop Hartzell

INTERIOR OF A HOUSE IN TUNIS, NORTH AFRICA

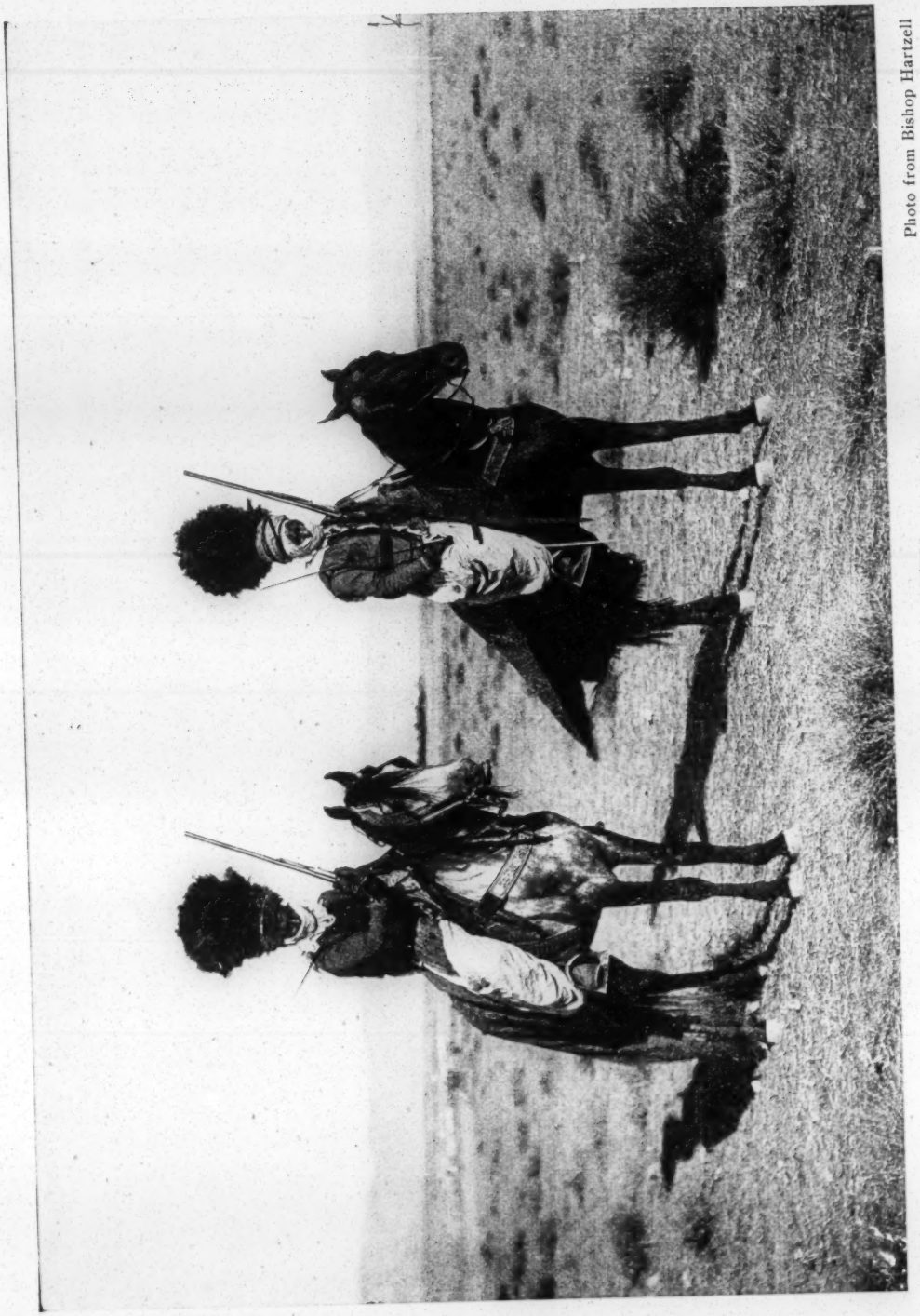


Photo from Bishop Hartzell

HORSEMEN IN ALGERIA

survey, and that line is followed as closely as possible. The bridges, tunnels, culverts, and, in fact, all stone work, is built for centuries. Some of the mountain bridges are master-works of engineering, spanning gorges of great depth. All of the bridges are of stone, very little steel being used anywhere in the colonies. Wherever it is necessary a wall three and a half feet high and a foot and a half wide flanks the roadway to prevent accidents. These roads are not merely near the larger cities nor are they confined to the seacoast, but they penetrate far into the great desert to accommodate the caravans coming in from the distant oasis of the south.

Along the Mediterranean Sea the aspect of the coast is most forbidding. Between Bougie and Jijelli, a distance in a direct coast line of about 100 miles, a road has been cut out of the solid rock face of the cliff, and with its winding and turning, as it follows each turn of the cliff, it has made the length over 200 miles, and forms perhaps the most wonderful corniche in the world. I have motored from Naples to Spain, and have followed every foot of the Italian and French Riviera, and I have seen nothing that can compare with this Algerian highway. It should also be noted that this wonderful road connects but two towns, with no intermediate village of any importance, and I doubt if the total population of these two towns is 40,000.

No soldier in battle shows more bravery than was shown by the French engineers who first conceived that great work. They have built in a manner that equals in wonder the roads of the Romans, who occupied this same land centuries ago. This corniche will be in use a thousand years hence, when the whole of northern Africa will be as thickly populated as southern Europe is today. The French are building for the future; they are planning a hundred years ahead in everything they do; they are using these great roads as a means of opening the country just as the railroads have opened our great West.

From this road along the coast and from all main highways in Tunis and Algeria are projected a network of minor roads, equally well built, but a trifle narrower, and in the mountain districts trails for animals reach every remote hill and valley. Each one of these trails is as perfectly engineered and as perfectly laid as any of the greater and more important roads. I could not but contrast them with the poor goat paths of our West, dangerous and insecure, to be washed away at every spring freshet. The French government does not wait for a district to become populated before it sends a road or a trail into it, but rather does it invite the settler along a well-laid path into a new field. We have much to learn from France.

The roads of northern Africa are not only well built in the beginning, but they are kept in perfect repair at all times. They are divided into sections of about six or eight kilometers; an overseer or section-boss has charge of these divisions. A well-appointed house is built for the accommodation of him and his family, and his duty does not carry him beyond his own particular section. Each kilometer of road in the colonies is marked by a large square-cut stone, with the distance from the last important town cut in large plain figures, and beside this each kilometer is subdivided by smaller stone markers every ten meters, each one also marked.

Every few miles there is a watering trough where pure water is supplied to the traveler and to his animals. It is built so that even the goat herds can obtain easy access. In the center a spout supplies the drinking water for the people who desire it, and it is no unusual sight, in the dry districts near the desert, to see natives bringing their skin water-bags many miles to carry the water supply back to their houses. These troughs are built of concrete or of stone, and the supply of water is drawn from artesian wells or piped from the mountains.

In the wilder districts the government has built a sufficient number of folds to protect the herds during the night.

The American government might well take the lesson afforded by the French as builders of roads, and after sending a

commission into these northern African colonies build some national roads of our own. I would like to see a movement started to build a national road from Washington to San Francisco in as direct a line as could be laid, and then have it crossed by another from Chicago to New Orleans. Ignore every city or town that did not come in the direct line of survey and allow the various States to connect with it as they wished. With such a foundation this country might soon have roads worth an incalculable amount to every industry. The travelers of the world would forsake the old watering-places of Europe and come to us. This plea should not be made for motorists, nor for horsemen, nor for any particular industry or mode of locomotion, but it should be built as a forerunner of a better intercommunication, for military purposes, and for local travel. It would cost millions, but those millions would be spent entirely among our own people and our own workmen would reap the primary benefits.

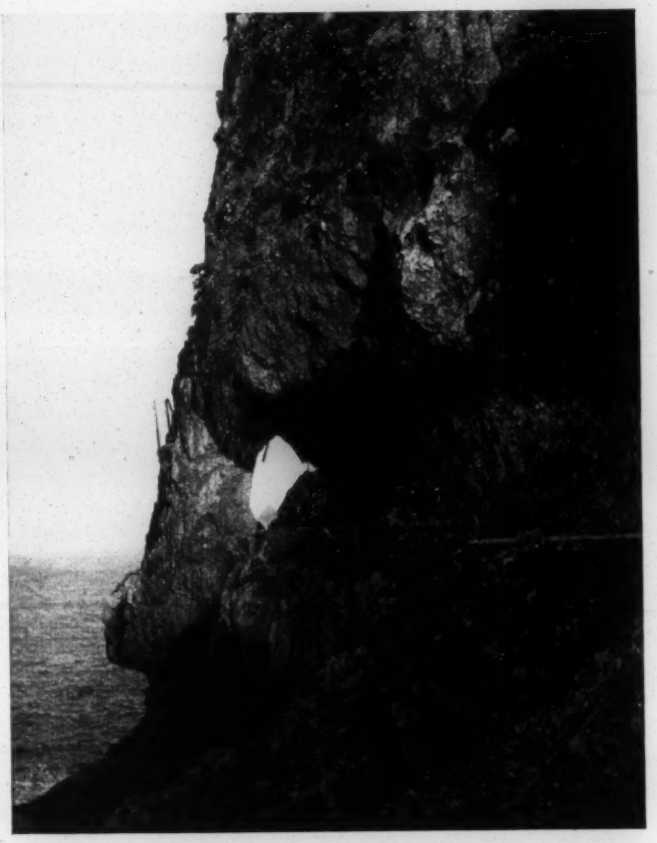


Photo by James F. J. Archibald

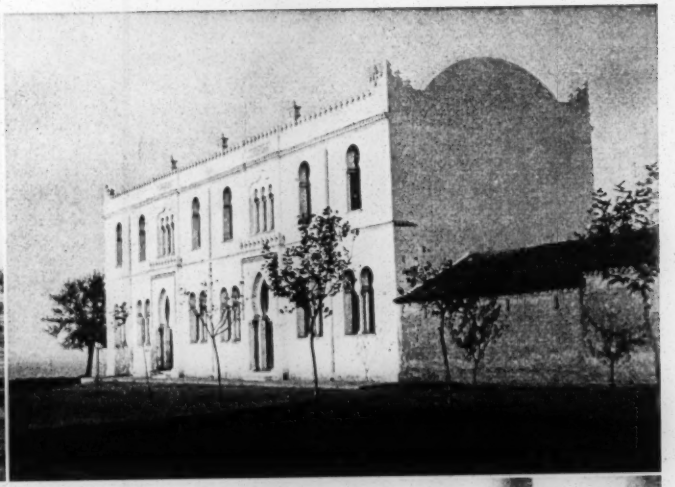
THE ROAD BETWEEN JIJELLI AND BOUGIE, WHICH HAS BEEN CUT OUT OF THE SOLID ROCK FACE OF THE CLIFF FOR MANY MILES (SEE PAGE 306)

In Tunis and Algeria every adult male inhabitant is taxed three days' work on the main roads and one day on the minor roads. This tax can be worked out or it can be paid in cash at the rate of one franc (twenty cents) per day. In the first two years some discontent was experienced in Tunis, but as soon as the natives saw the results they changed their attitude, and now they gladly do their work, for even the poorest of them realizes the great benefits.

It was not my intention to dwell upon the roads of Tunis and Algeria nor to proclaim this motorists' paradise, but my great admiration for the French as colonists has prompted me to write fully of their work.

During the last fifteen years my work as a war correspondent has taken me into many of the more remote colonies of the world, and during that time I have tried to give the subject of colonial government some study, but not until I visited the French colonies of northern Africa did I find what I considered a most perfect form of colonization, and I now firmly believe that the French people and the French government are today the most practical colonizers of the civilized

INTO THE DESERT SOUTH OF BISKRA



A DESERT SCHOOL HOUSE

WATER TROUGH, SECTION HOUSE AND ½ KILOMETRE STONE (SEE PAGE 306)

ROMAN RUINS IN TUNIS

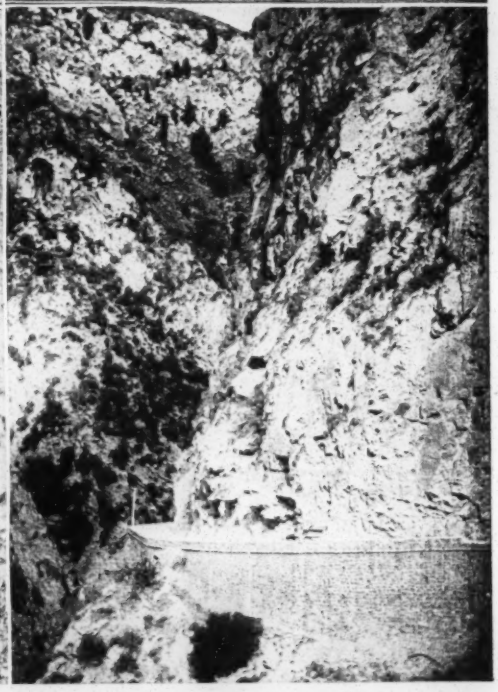
Photos by James F. J. Archibald

A FRENCH SOLDIER IN AN ALGERIAN REGIMENT

Photos by James F. J. Archibald

THE CAID BEN BOU AZIZ, SON OF THE CHIEF OF ALL THE ARABS, BEN GANA

CHILDREN OF ALGERIA



A MOUNTAIN ROAD IN ALGERIA

Photo from Bishop Hartzell

BEDOUIN GIRL AT HOME, NORTH AFRICA

world. England has long been held up as the ideal of colonial perfection, but England colonizes by force of arms. We have prided ourselves on our own recent experiments and endeavors in that line of work. Germany has many model colonies scattered about in various parts of the world, but they could all go to France and study her methods with much benefit.

France does not flaunt the tri-color, the flag of the conqueror, in the face of the vanquished native; they do not meddle with the religions or the customs of the people. They teach the French language to the Arabs, but in return they learn Arabic; they adopt the customs of the natives as well as give them their own. The French regiments on service in northern Africa are uniformed in a dress almost like the dress of the Arab, and in this way they become a part of the people of the country; yet they are always French, and they never lose anything by concessions they make in these customs. The Arab caids are consulted and their advice is given such weight as it deserves. All the public buildings are built in Moorish style, and thus the characteristic architecture of the country is preserved. The school-houses throughout the country are striking examples of this excellent policy on the part of the French.

During the several weeks' motoring in the two colonies I do not think that I saw half a dozen French flags outside the cities of Algiers and Tunis. I state this merely to show that it is not the idea of the French people to continually flaunt their flag in the faces of the natives, but rather to let it be considered an emblem of protection to their rights. The courts are impartial and just, and Frenchman and native alike obtain justice; nor does France impose prohibitive duties upon the products of the countries when she enters the home ports.

The picturesque side of these colonies cannot be overestimated, for the scenery affords everything from the most gorgeous rocky mountains to the great mysterious desert. At Biskra the Arab Caid Ben Bou Aziz entertained us in the "Garden of Allah" and took us far south to Sidi Okba, an oasis upon which stands the shrine of the great Arab warrior who conquered northern Africa in A. D. 680, and where about 3,000 natives live in exactly the same manner as their forefathers did 2,000 years ago. As we wandered through the narrow streets the natives crowded about the chief Bou Aziz, and each one kissed the hem of his burnouse. The only sign of modern civilization I saw in this oasis town was one shop, where a native tailor worked away on Arabic costumes on the ever-present Singer sewing-machine, which has probably penetrated to more remote parts of the world than any one American product. At luncheon, in a pavillion under the date-palm tree, where the sands were carpeted with rare silk rugs, we were served with desert foods, the most curious of all being a small camel roasted whole; also an entire sheep served to be picked to pieces with the fingers.*

Not the least of interest in these northern African states are the old Roman ruins which are being restored and preserved by the French government. At Timgad and Dougga there are better examples of Roman architecture than we find in southern Europe. The theater and baths of Timgad are in a far better state of preservation than anything in Italy.

In all it is an intensely interesting country, easy of access to travelers by train, and especially by motors, for every hotel has its garage. In Algiers we find a city absolutely French in every detail, more French than Marseilles. From that we can go to every degree of civilization and interest, but over it all comes the great thought of the credit due to the French government for its great work.

* See also "Biskra—the Ziban Queen," by Mrs Bosson, with 30 illustrations. NATIONAL GEOGRAPHIC MAGAZINE, August, 1908.

THE BLACK MAN'S CONTINENT.

THE pictures published in this number have been selected from several thousand obtained by the Magazine during the past year from all parts of the world. Several of them were sent in by a member of the National Geographic Society in Italian Somaliland; others by Bishop Hartzell, of the Methodist Episcopal Missions in Africa, and for a number the Magazine is indebted to Dr J. Scott Keltie, Secretary of the Royal Geographical Society of London. About 25 are from photographs by Dr C. E. Akeley, of the Field Columbian Museum of Chicago. Dr and Mrs Akeley spent nearly a year in that portion of British East Africa, where President Roosevelt will hunt during the coming months. Dr Akeley was making natural history collections for the Field Columbian Museum, as well as doing some hunting. The largest elephant shot by Mrs Akeley is shown on page 244.

The principal object of the map, published as a supplement, is to show the commercial development of the continent. Our original purpose was also to give the tracks of the great African explorers, but the continent has been so repeatedly traversed from sea to sea in so many directions that if the explorers' routes had been shown we would have been obliged to omit nearly everything else from the map, and would also not have had room for all the routes.

Perhaps the most interesting feature of the map are the red lines showing the net-work of telegraphs in many sections. The reader will probably be particularly surprised by the great number of telegraph lines in French West Africa along the Niger River. The French are pushing the development of this region, and at the same time building a magnificent harbor at Dakar which, in a few years, will be the best harbor on the West African coast. It will be noted that the Cape to Cairo Telegraph line requires only a few links for completion.

All parts of the continent with the exception of Morocco, Abyssinia, and the Spanish and Portuguese territory, are now being exploited by the European merchant and engineer, assisted by American free-lances. Morocco probably offers greater possibilities than any other section of Africa, and before long will be compelled to yield to the commercial invasion. The Portuguese possessions of Angola and Portuguese East Africa are very rich in minerals, timber and forest products, but the little kingdom which controls them is not able to do much for their development.

The Dark Continent has nearly three times the area of the United States and Alaska. Upon it you could place Europe, the United States and Alaska, and then add the Chinese Empire. It is within a few square miles as large as North America, Argentine, Brazil, and Peru combined, but in spite of its tremendous size it has a coast-line of only about 15,000 miles, whereas the coast-line of little Europe exceeds 19,000 miles. As its coast-line is thus nearly as monotonously regular as a circle, its natural harbors are very few and far between. Two-thirds of its area lies within the tropics and has the sun vertical twice a year, while the remaining one-third is practically all subtropical.

Africa differs from every other continent in that it has no great mountain chain, as the Alps in Europe, the Himalayas in Asia, and the Rocky Mountains in the Americas. The African mountains form very small groups at great distances from each other. But on the other hand, the average elevation of Africa is 1,900 to 2,000 feet, while the average elevation of Europe is only 1,000 feet and of Asia 1,650. The reason of this is that the great bulk of the African continent is a plateau of from 500 to 2,000 feet elevation. There is a rim of lowland around the coast, but one hundred miles or more inland the continent rises abruptly. As a result the great rivers which on the map appear to afford such splendid highways for commerce are choked by impassable cataracts only a few miles from the seaboard. For instance, 200 miles of unnavigable cataracts block the Congo only 150 miles from the sea. After these cataracts are passed the river offers more than 1,000 miles of splendid waterway into the heart of Africa.

*Area and Population of Africa**

	Area in square miles.	European population.	Native population.
British Africa	2,765,000	1,070,000†	32,000,000
French Africa	3,890,000	825,000‡	33,000,000
German Africa	933,000	11,200	11,700,000
Italian Africa	188,500	4,500	850,000
Portuguese Africa	790,000	4,000	5,000,000
Spanish Africa	169,000	600	270,000
Turkish Africa (Tripoli)	399,000	5,000	1,000,000
Egyptian Africa (including Anglo-Egyptian Sudan)	1,010,000	117,000	13,080,000
Congo State	900,000	3,000	30,000,000
Morocco	219,000	3,000	6,000,000
Abyssinia	200,000	1,000	10,000,000
Liberia	42,000	100	2,000,000
	11,505,500	2,044,400	144,900,000

*All figures are approximate.
†Of whom 1,060,500 live in British South Africa and Rhodesia.
‡Of whom 810,000 live in Algeria and Tunis.

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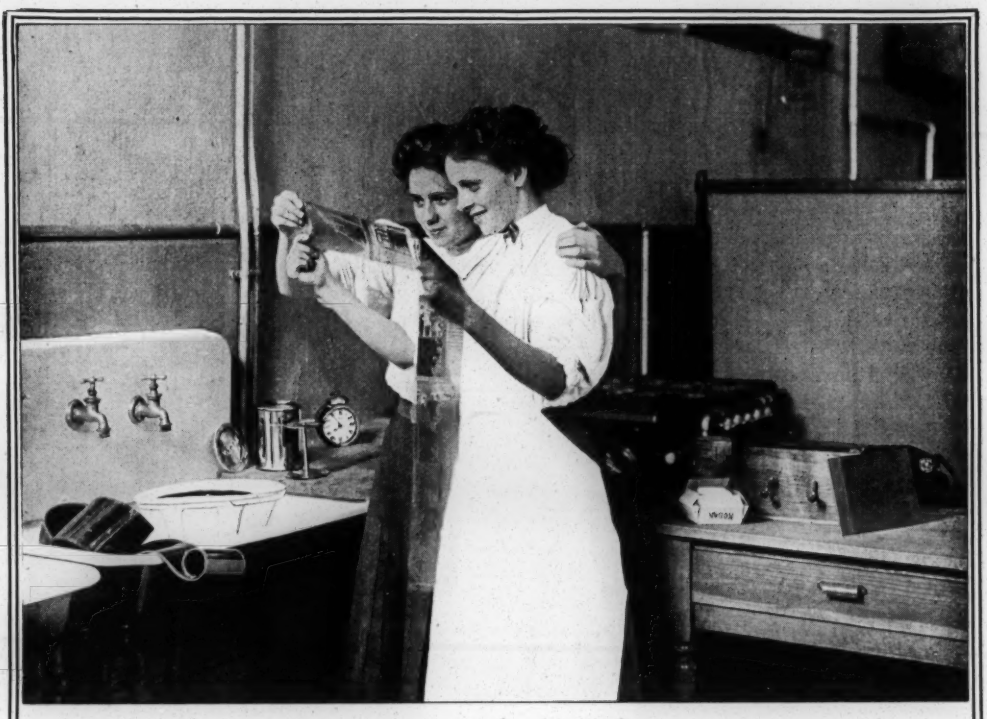

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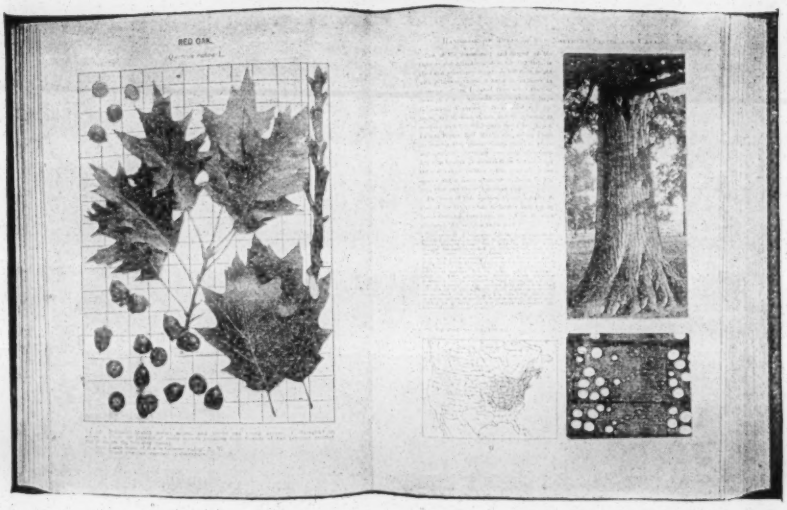

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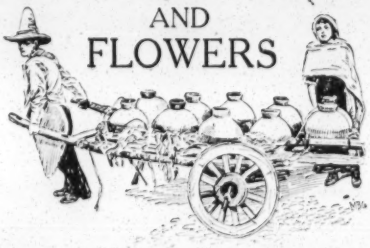

of babies and bull fights; where matches are held up instead of down; where outside doors are locked at ten o'clock; where the weather forgets to change and the people use their housetops as gardens.

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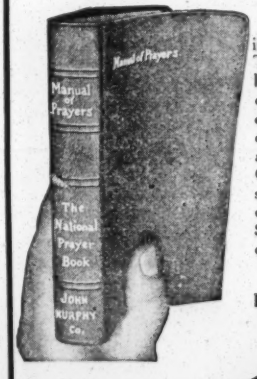

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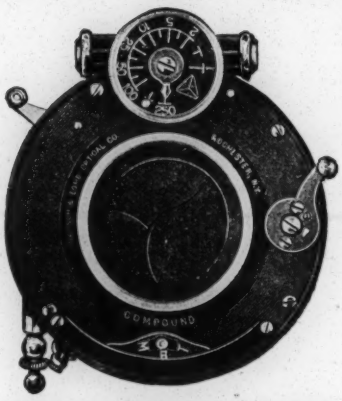

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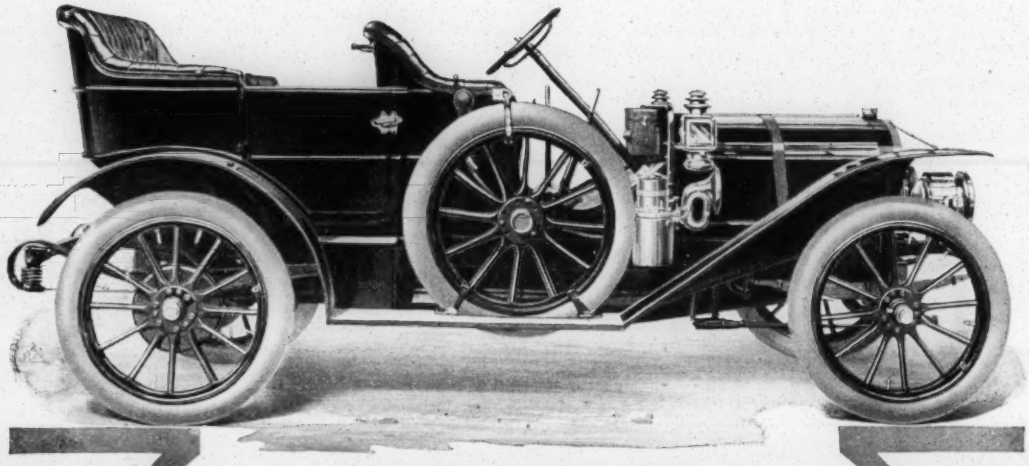

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